ENGINEERING NEWS-RECORD

- ▸ [illegible] delta girders [illegible] bridge
- ▸ [illegible] powerhouse: Designed to beat the bomb

Big augers drill 115 ft to bedrock

STEVENS RICE GS N
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313 N FIRST ST
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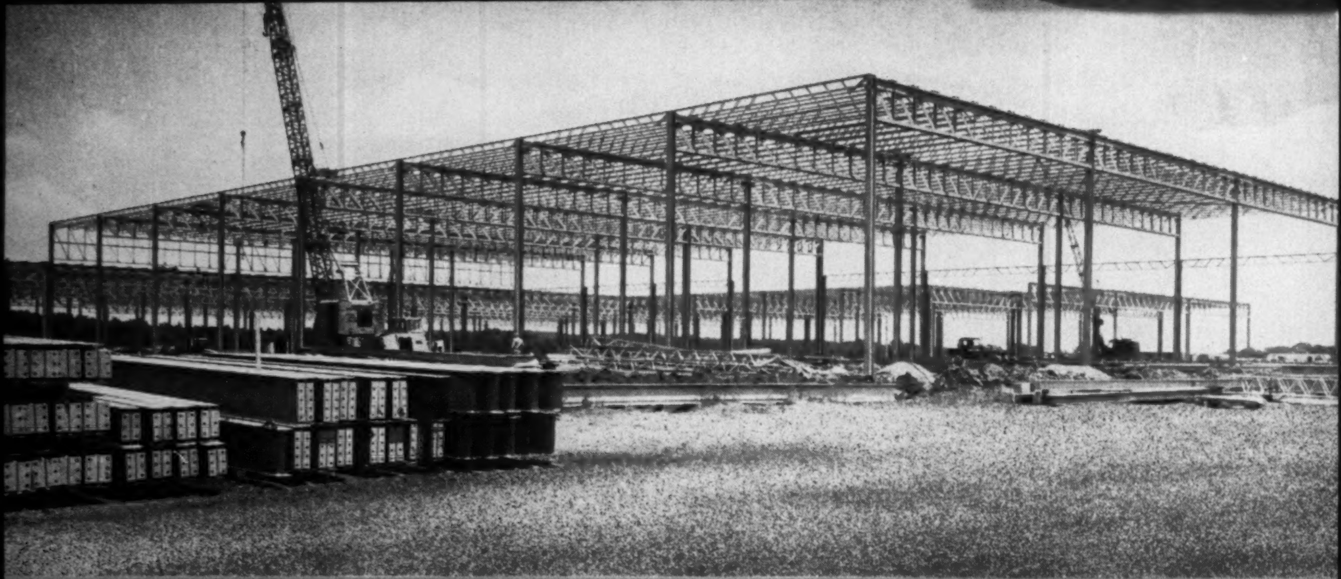

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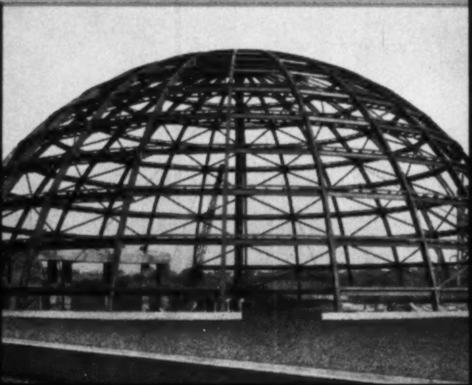

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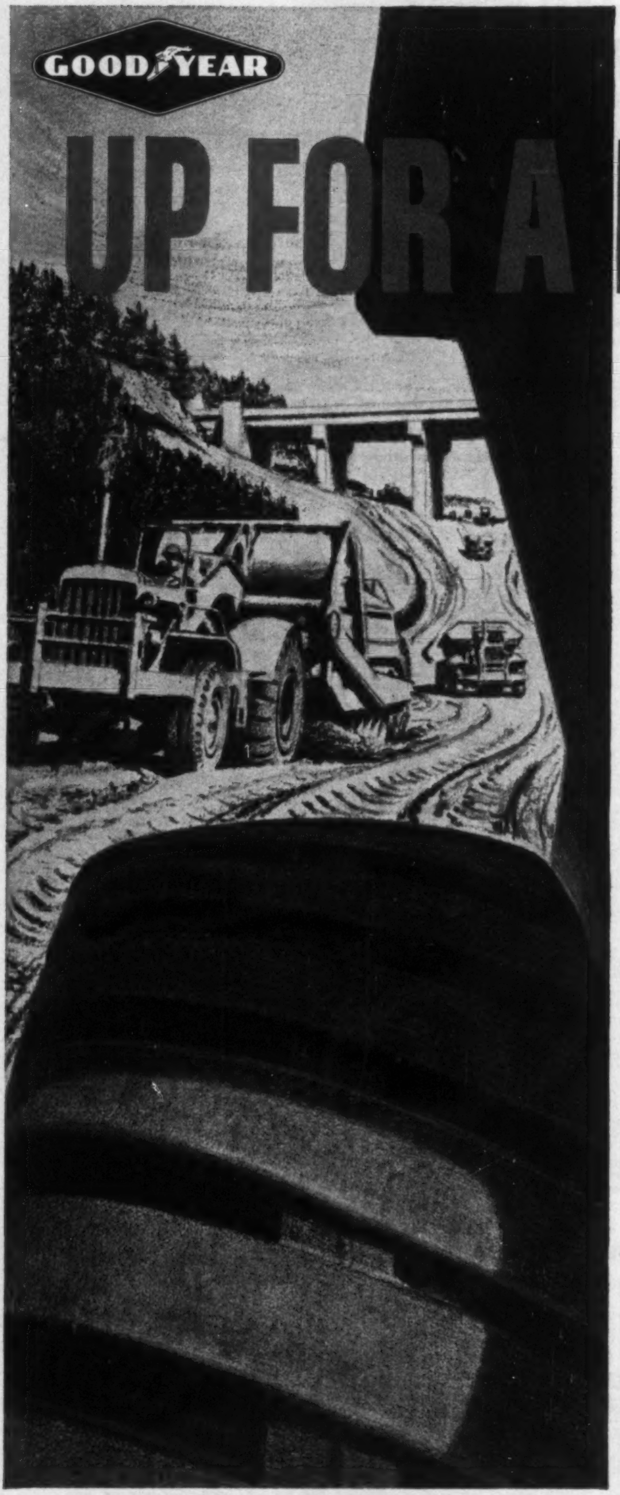

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Extension Brackets and Symons Steel-Ply Forms

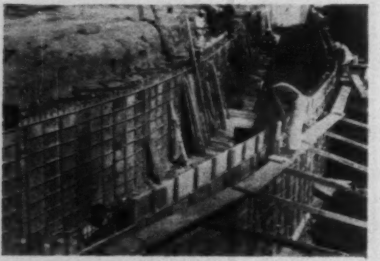
. . . enable contractor to pour at 15c a Square Foot

California contractor, Elmer J. Freethy saved substantially in pouring a channel lining for a flood control project at Pleasant Hill, California. It involved curved walls 9 ft high and 4,000 ft long.

Symons 8 ft Steel-Ply Forms were used with Symons New Extension Bracket, to get the additional foot. In addition to speed, the extension gave the final foot the appearance of a cap on the wall.

Wall specs called for a ½" extension joint every 40 lineal feet. The contractor had the ½" premoulded material cut 3" wider than the wall and used the wall forms to hold it in position. By using a 1" filler on these joints they were able to tie the forms together with long connecting bolts and pour the walls continuously.

Symons Steel-Ply Forms are *rented with purchase option.*



Note extension brackets in foreground and minimum amount of bracing required for curved walls.

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Give him the Feather-Touch Clutch Control, that lets him nudge a rock with the feel of the load to a degree *impossible* with any air or hydraulic control.

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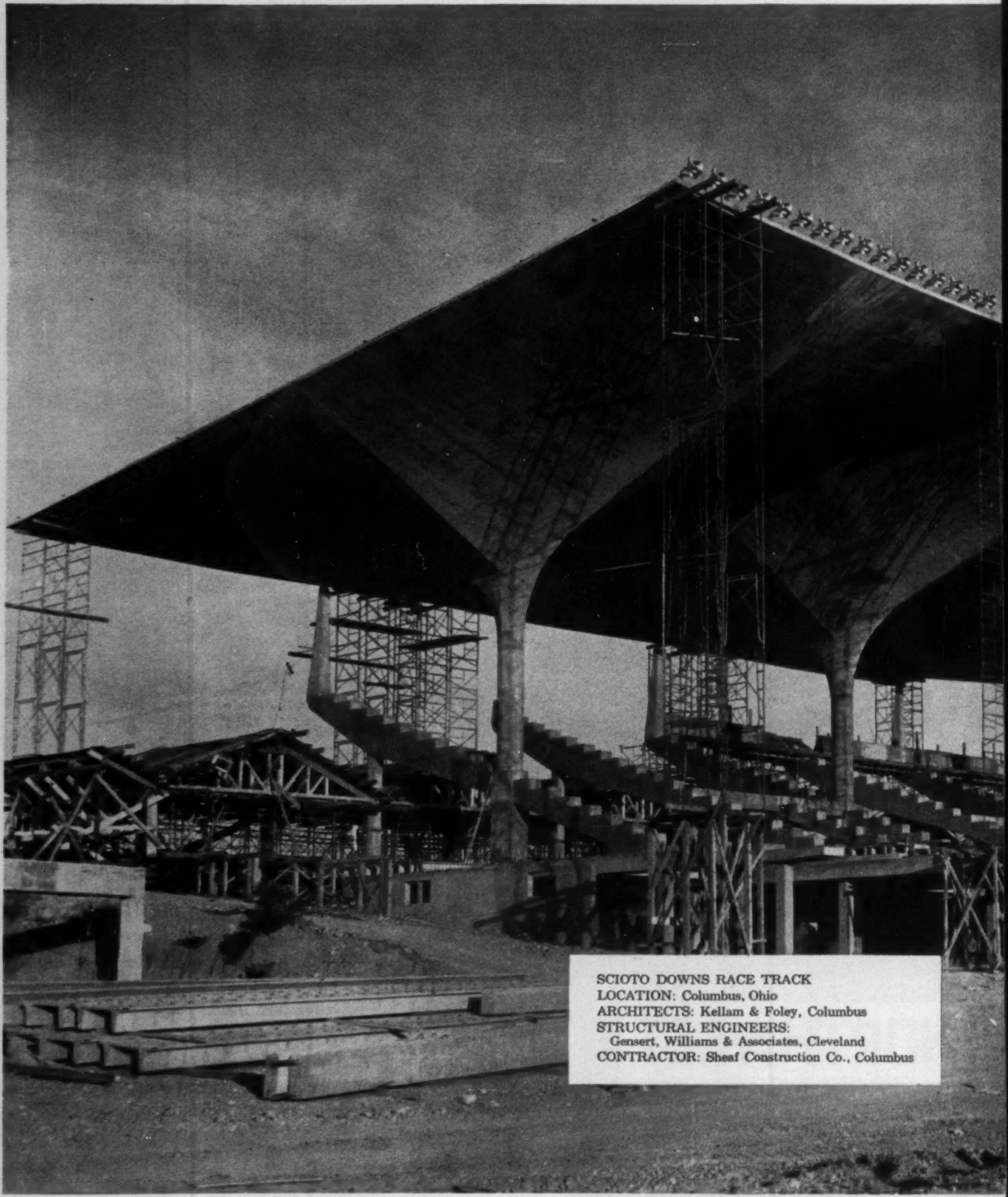
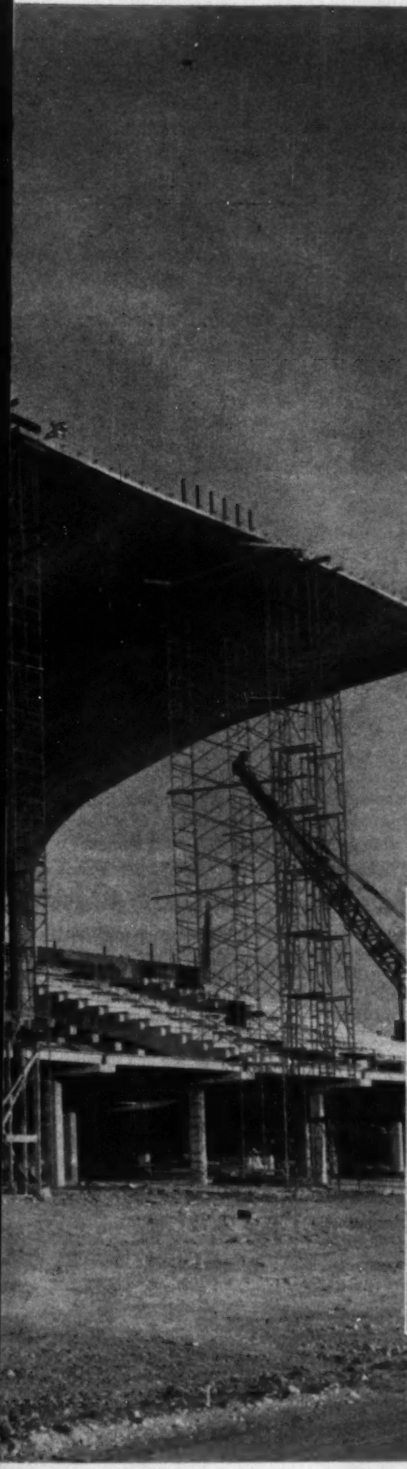
Fir plywood helps solve problem on giant



SCIOTO DOWNS RACE TRACK
LOCATION: Columbus, Ohio
ARCHITECTS: Kellam & Foley, Columbus
STRUCTURAL ENGINEERS:
Gensert, Williams & Associates, Cleveland
CONTRACTOR: Sheaf Construction Co., Columbus

complex forming concrete umbrella roofs



PLYWOOD'S UNIQUE ADAPTABILITY as concrete form material simplified a complicated roof construction job at the Scioto Downs race track, Columbus, Ohio. At the same time, plywood created smooth concrete surfaces and kept costs low.

The striking grandstand roof is a series of huge hyperbolic-paraboloid concrete shells. Each 61 x 116-ft. section is supported by a 44-ft. column. The clubhouse and offices have thin-shell concrete folded plate roofs.

Plywood was shaped so easily to the complex curvatures of the grandstand roof, and made such tight joints, that the contractors found it needed no liner. Original specifications had been for lumber or plywood backing faced with hardboard for surface smoothness. But a single layer of ¾" plywood to do both jobs resulted in a smooth, fin-free concrete surface, besides eliminating the labor and material cost of applying liner.

More savings came from plywood's ease of handling, which the contractors called a real cost cutter. And rate of re-use was exceptionally high. Panels stripped from the grandstand roof were used on the folded plates and were still good for many more times. There was only a four percent loss out of 10,000 sq. ft. of plywood.

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TACOMA 2, WASHINGTON
—a non-profit industry organization devoted to research, promotion and quality control

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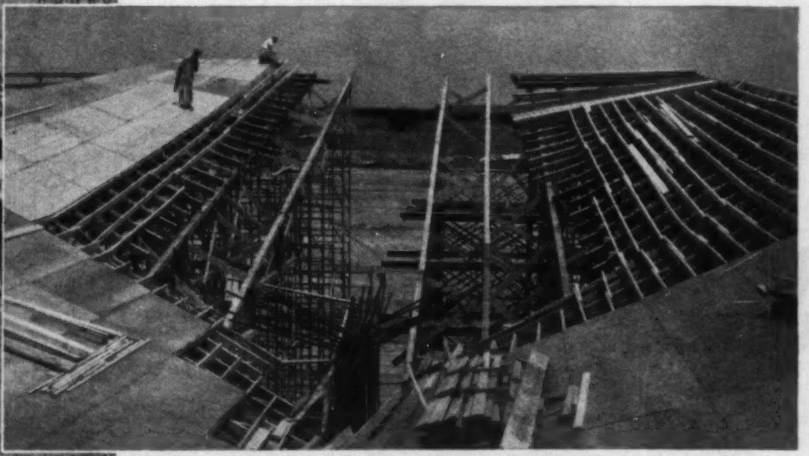
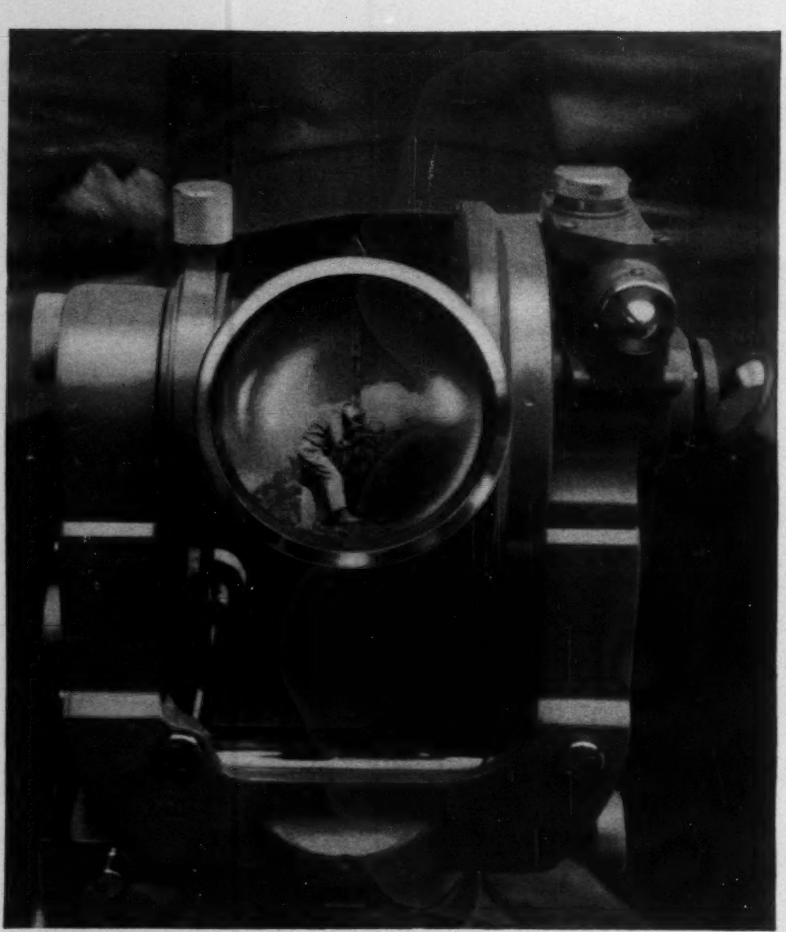
ALWAYS SPECIFY DFPA-QUALITY TRADEMARKED PLYWOOD. Concrete form grades include: INTERIOR PLYFORM® — made with moisture-resistant glue, gives up to 10-12 re-uses; EXTERIOR PLYFORM® — waterproof glue, gives up to 25 or more re-uses; OVERLAID EXTERIOR PLYWOOD — premium panel, forms smoothest concrete, gives up to 200 re-uses.



Grandstand roof forms were of ¾" fir plywood over a grid of 2x4's and 2x6's. Panels adapted readily to required curves, yet joints were tight and final concrete surface was smooth and even. Office building behind grandstand and clubhouse at side have continuous folded plate concrete roofs. They were formed against plywood panels previously used on grandstand roof.



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Reader Comment

Slip-Up on Slip-On

SIR—I was quite interested in the article on the use of push-on joint pipe in the waterworks field (ENR Apr. 13, p. 68).

Unfortunately, however, there is one gross error in the article. The next to last paragraph states that the cost of materials for push-on joint pipe is slightly higher than for mechanical and bell-and-spigot pipe. This definitely is not correct with the U.S. Pipe Co.

Our company offers push-on joint pipe at an extra charge over bell-and-spigot pipe. However, this extra charge is about half of the extra charge for mechanical joint pipe as compared to bell and spigot.

I am afraid the paragraph in the article may be misleading to some of your readers.

CARL N. BROWN
Sales Manager-Pipe
United States Pipe and Foundry Co.
Birmingham, Ala.

Editor's Note—Other manufacturers of cast-iron pipe have also pointed out the error. Material costs of slip-on or push-on joint pipe are lower than those of mechanical joint pipe, not higher as indicated in the article. Both cost more than the bell-and-spigot pipe.

Another error crept into our reference to the size range in which the pipe is available. The slip-on joint pipe can be found in sizes ranging from 2 in. through 48 in.

Passamaquoddy: R. I. P.

SIR—You note the U. S.-Canada International Joint Commission's rejection of the proposed $687-million Passamaquoddy tidal project (ENR May 4, p. 15). It has been about 35 years since the first rejection of the scheme for the identical reason—"economically unfeasible."

In 1926, Dexter Cooper was instrumental in the development of a scheme to harness the tides of Passamaquoddy Bay. He advanced the idea to the point where a group of interested financial backers asked Murray and Flood to pass on the feasibility and economical advisability. In turn, Murray and Flood asked Henry Goldmark, with whom the writer was then associated, to determine the possibility of obtaining fixed power

(Reader Comment continued p. 10)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

engine power

BY CATERPILLAR

Here's a new profitable combination

900
GARDNER-DENVER

Caterpillar-powered Gardner-Denver "Rota-Screw" portable air compressors reduce maintenance to lowest costs ever

Here is a major breakthrough in performance which means new low costs to users of compressed air. Gone are rotary blades or pistons. A helical "Rota-Screw" now eliminates blade chatter, vibration and whine. Quietness, pulsation-free air and minimum maintenance are the results.

Gardner-Denver's new SP900, a 900 CFM machine, is powered, as standard equipment, by the Cat D343 Diesel Engine. The SP600, a 600 CFM machine, is standard with the Cat D333 Diesel Engine. You get four-cycle design with full-stroke efficiency, plus full-length, watercooled cylinder liners for efficient cooling. Aluminum alloy pistons give low reciprocating weight, valve rotators distribute valve face wear and low-friction aluminum alloy bearings are known for superior strength and load carrying ability.

You'll like the Cat-powered Gardner-Denver line for the Caterpillar fuel system that provides "constant power" with *no* adjustments. Low-cost, high BTU fuels, such as household furnace oil, can be used instead of premium-cost No. 1 diesel fuel. Single orifice injectors and precombustion chamber design prevent fouling, even during long periods of idling between air demands. Electric glow plugs and ether starting arrangement are standard for quick, sure starts at below zero temperatures. Compressors are tested for a temperature range of −40° F. to 115° F.

Compressor service is available through a world-wide network of Gardner-Denver service points. In the U. S. alone there are over 5100 Caterpillar Dealer field service trucks on 24-hour-a-day call for engine service.

For more information on this new concept in compressors, write to the Gardner-Denver Company, Quincy, Illinois. Your nearby Caterpillar Dealer can tell you more about Cat Diesel and Natural Gas Engine Power for every application requiring from 50 to 950 HP, or write to Department 516, Engine Division, Caterpillar Tractor Co.

CATERPILLAR

Engine Division, Caterpillar Tractor Co., Peoria, Ill., U. S. A.

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BOLT TENSION

AN IMPORTANT

NOW . . . fast, accurate, consistent tensioning of high-strength bolts with new Gardner-Denver Tension Control Wrench

NEWS ITEM: Research Council publishes new specifications for bolted connections.

NEWS ITEM: Manufacturers introduce high-strength structural bolts—specifically designed for tensioning.

NEWS ITEM: Gardner-Denver announces new tool that accurately and consistently controls clamping force applied to an assembly.

The newly developed Gardner-Denver Tension Control Wrench completely embodies the concept of bolt tension as a clamping force. It's lightweight, compact and adjustable. A simple control accurately regulates input; consequently, it accurately controls output of the wrench. This new air tool also incorporates the patented Gardner-Denver impact mechanism—proved fast-acting and reliable in both industrial and construction fastening.

Accurate bolt tensioning is accomplished in three to five seconds—well within the ten seconds specified by the Research Council.

TWO MODELS . . . 18B-7T AND 18B-9T

MAKE A DATE—WE'LL DEMONSTRATE

You have to see this amazing new wrench in action to completely appreciate its capabilities and possibilities. It took test after test after test to convince Gardner-Denver engineers themselves that they'd found a completely reliable way to assure accurate tensioning. We think you'll be convinced, too, once you see a demonstration. Ask your Gardner-Denver representative for an appointment.

FIVE IMPORTANT ADVANTAGES

1. **Uniformity of bolt tension** every time, regardless of variables in fasteners or air pressure.
2. **Reduced costs,** by using fasteners to their designed capacities.
3. **Stronger bolted assemblies** because fasteners can now be tightened to stand load variables.
4. **Built-in standard control** with no attachments. All standard parts, nothing extra to buy.
5. **Control override** for reversing fasteners, or for using full wrench power if desired.

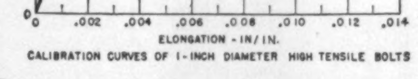
REPORT FROM GARDNER-DENVER

Problems with Torque Control—When tightening bolts by the torque control method, there is no reliable way to tell if they have been tensioned. Torque readings are subject to many forms of interference. To mention a few: irregular threads, burrs, rust and scale, bent washers. Torque readings will vary if threads are lubricated or dry, if washers are soft or hardened.

All these variables offer resistance in the form of friction. Consequently, as a nut is being tightened, the resistance increases until friction becomes great enough to signal the operator or torque control mechanism to stop. Perhaps the bolt has reached its desired clamping force. Perhaps not. The very first obstruction can cause a sharp increase in torque resistance, and the result may be a large variation in true bolt tightness.

New Approach to Bolt Tensioning—However, if you follow the Research Council specifications for tensioning, you're absolutely sure the bolt is tight every time. A new approach to a practical method of obtaining bolt tension was made by Gardner-Denver's research and development engineers. When the new high-strength bolts are tightened to their yield point, the force required is great enough to overcome all frictional interference, and to obviate the effect of frictional variables on final joint tightness.

Gardner-Denver engineers determined that if input energy to the wrench could be controlled, the output energy could stress bolts to their yield point (see chart) without approaching ultimate bolt strength. Many impact blows were found to be the answer. These blows, however, must always have the same output force if the bolt is to reach its desired clamping force. Further testing demonstrated that when predetermined bolt tension is reached, the nut will stop turning, even though the wrench continues to impact.



CALIBRATION CURVES OF 1-INCH DIAMETER HIGH TENSILE BOLTS

Consistent, Reliable Results—In test after test, Gardner-Denver engineers were amazed at the consistent results achieved with their new Tension Control Wrench. They tightened the same fastener over and over again; the results were the same. They tried other bolts of the same size and achieved consistent tension results. They reset the wrench for bolts of other sizes and materials, and again achieved consistent bolt tensioning every time. This reliability is possible because the wrench can be adjusted to obtain a predetermined tension in any bolt. This clamping force is so great that the variables mentioned above yield until the specified bolt tension is obtained.

Application in the Field—Bolt manufacturers specify minimum proof load and minimum yield. In the field, yield point can be determined by use of a conventional torque wrench or by hand wrenching. It will be indicated by the "steady torque"—the point at which continuous torque (no increase) will continue turning the nut. You find this yield point on a sample bolt—then, using a simple screw adjustment, set the Tension Control Wrench to obtain the same bolt tension. Once set, the wrench will tighten one or thousands of these particular bolts with consistent, accurate results. The Gardner-Denver wrench can quickly be readjusted to handle bolts of other sizes or other materials.

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER-DENVER Since 1859

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RESEARCH
CUTS SEWER LINE COSTS!

The Clay Pipe Industry's research has pioneered dramatic new developments, making production and installation of lifetime Vitrified Clay Pipe more efficient and effective.

For example, Clay Pipe Industry research discovered the revolutionary resilient compression joints which are now offering important savings in installation time and cost to users of lifetime Vitrified Clay Pipe sanitary sewers.

Other important tests are now going on at the Crystal Lake facility, by contract at colleges and universities all over the country, and at the modern laboratories maintained by individual Clay Pipe manufacturers.

One experiment that promises to have far-reaching effects: detailed, year-long observations of root penetration of 16 separate sewer pipe joints. Others include shear load studies of both pipe material and joints, development of new, less expensive jointing materials and techniques, exhaustive analyses of competitive products, flow-coefficient studies, and various tests aimed at improving the clay pipe itself.

Results of the most significant of these tests will be announced as they become available.

Under the direction of A. J. Reed, NCPMI Vice President and Director of Research, new breakthroughs in manufacturing and uses of Clay Pipe are being made, offering greater, more confident service to those who specify and use lifetime Vitrified Clay Pipe.

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CLAY PIPE
IMPERVIOUS
THE STANDARD in SANITARY SEWERS

NATIONAL CLAY PIPE
MANUFACTURERS, INC.
Washington, D. C.

from the tides and also the cost of the dams, gates and sluiceways.

At that time, our analysis of daily water volumes available over a period of a year at the available heads showed that fixed power could be obtained only if either standby steam generating capacity was made available for a small percentage of the time or else some high-level storage reservoirs were added and filled during peak generation periods. Either scheme required expenditures that made the over-all cost higher than steam generation by itself. The project was abandoned as "economically unfeasible."

Since then, large sums of money and almost countless man-hours have been expended in studies, investigations and estimates, to say nothing of the construction of a Passamaquoddy Village to house the future workers on the construction project. Such technical exercise, of course, develops experience and knowledge and has some value. But cannot that time and money be better spent for more worthwhile developments of projects having a better chance of return to the public good, even though they may not be as glamorous to the nontechnical public?

JACOB FELD
Consulting Engineer
New York, N. Y.

Check Secondary Stresses

SIR—I read the editorial in ENR May 11, p. 80, on the need for stiffer steel and agree with you that we may be going too far in producing higher strength steels without substantially increasing their elastic resistance.

There is one aspect of high-strength steels that should be emphasized; their effect on secondary stresses. For the complex structures we are designing today, careful investigation of and structural provision for secondary stresses are of the greatest importance to avoid failures. Danger of a failure due to ignoring secondary stresses may be increased by using high-strength steels without corresponding increased stiffness.

O. H. AMMANN
Ammann & Whitney
Consulting Engineers
New York, N. Y.

Wrong Gage

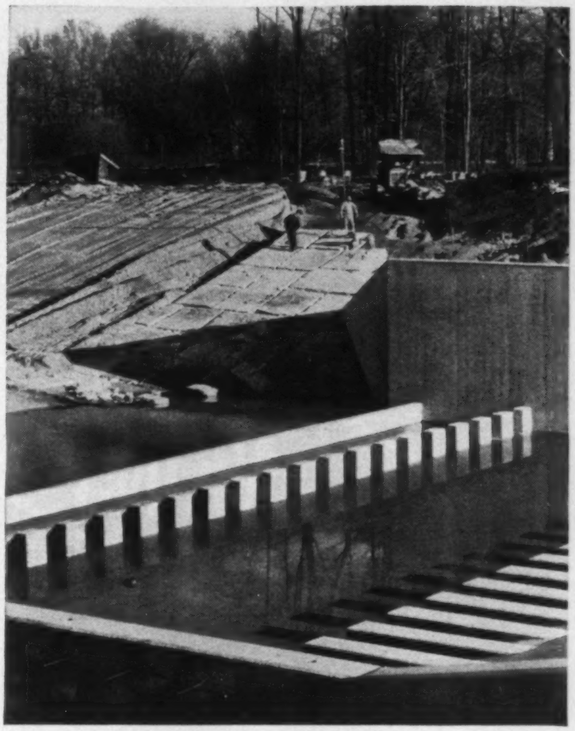
SIR—We were pleased to see your news item about our new redesign type A Inland Steel roof deck (ENR Mar. 16, p. 60). But we were sorry to note that one of the three gages of steel you mentioned is incorrect.

The item should have read: ". . . Inland Type A Deck is offered in 18, 20 and 22 gages, in either Bonderized-and-prime painted or galvanized steel, in lengths up to 28 ft 6 in."

T. G. BENNETT
Inland Steel Products Co.
Milwaukee, Wis.

Speedway or Spillway

Daytona International Speedway, Daytona, Florida


Spillway at Bridge Creek Dam, Geauga County, Ohio

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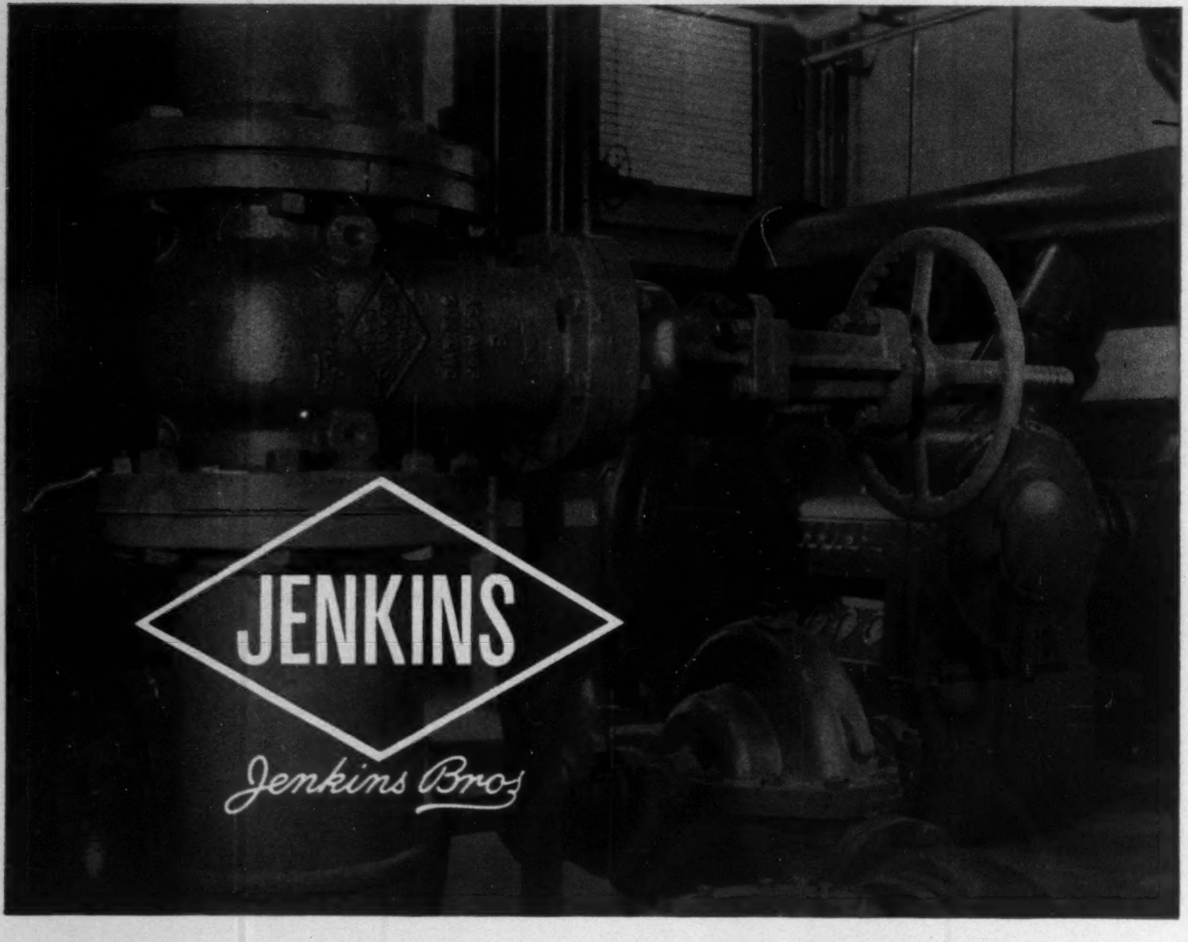
No matter where you use it, you won't have to sacrifice durability for economy if your construction aggregate is USS Blast Furnace Slag. That's because all-purpose slag gives you both. Economy, because slag is lighter—other aggregates weigh as much as 50% more per cubic yard. Durability, because slag is tough, hard, clean and sound. Slag particles are vesicular in nature and angular in shape so they form a tight, long-lasting bond in either bituminous or portland cement concrete. Pavements made with slag have hard surfaces that are highly resistant to wear . . . yet won't become slick or cause skidding. Concrete structures made with slag resist moisture penetration, so they are highly resistant to weathering and frost action.

Learn more about Blast Furnace Slag and its many applications—get durability and economy in your next job. Write United States Steel, Slag Products Section, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS United States Steel
TRADEMARK



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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

CHEAPER HIGH-STRENGTH STEEL—Look for savings ahead now that U. S. Steel has started commercial production of rolled structural shapes made from high-strength, quenched and tempered alloy steels. Until now fabricators had to meet the demand for high-strength sections by welding plates together. The use of rolled shapes instead of built-up members could bring savings of up to 30%.

MEN WORKING—Construction scored the biggest employment increase of all the nonfarm industries last month. Its employment total rose by 200,000 over the month—"substantially better than seasonal," reported the U. S. Labor Department. April's total of 2,644,000 was 54,000 above the total for April '60.

THUMBS DOWN—A California State Assembly committee has killed legislation needed to start construction on a 74.9-mile, $529.7-million rapid transit system for Los Angeles. The transit plan was drawn up by consultants Daniel, Mann, Johnson and Mendenhall (ENR July 7, 1960, p. 24).

TIME OUT ON HIGH VOLTAGE LINE—A federal task force says it will take another six months to complete engineering and legal planning of the proposed $200-million transmission line between California and the Bonneville Power Administration. The task force was appointed by Interior Secretary Stewart L. Udall, who has urged construction of the 500-kv line.

TO EACH HIS OWN—Labor Secretary Arthur Goldberg may recommend forming three arbitration groups to handle missile labor disputes. Two would be labor-management-public panels—one for construction, one for manufacturing disputes. The third, with public members only, would cope with craft-industrial union disputes.

DOWN TO THE SEWER IN SHIPS—The manager of the Little Rock, Ark., Sewer Department is fresh back from an all-expense-paid spring cruise. The city picked up the tab and even built his boat to order. Dragging their sash-weight anchor behind them, T. W. Clapham and his maintenance foreman toured six miles of new 60-in. trunk sewer aboard a small boat custom built for the inspection. Mr. Clapham says sewer boating beats sewer walking.

WHAT'S THE RANSOM?—Does Fidel Castro want tractors for roadbuilding, or farming, or both? And exactly how many does he want as ransom for 1,200 political prisoners? At the start of the week his negotiators were fuzzy about the details. Walter Reuther, one of a group of Americans negotiating the ransom, may have to go to Havana to find out what Fidel was talking about.

operation
time
saver...

GRIFFIN Solves Another Dewatering Problem! To build 11 double piers for the Chicago-to-St. Paul Expressway Bridge over the fast-flowing Wisconsin River, contractor procedure called for constructing three earth cofferdams in the coarse sand, gravel and boulders of the river . . . Typical of construction speed was the progress made in only 10 weeks in the cofferdam shown above: • Construct cofferdam—2 weeks • Install Wellpoint system and dewater to grade—one week • Excavate, drive piles and pour concrete up to river level—7 weeks.

Further proof of time and money saving advantages of Griffin Wellpoint planning, supervision and equipment.

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WASHINGTON OBSERVER

- **Housing bill to the rescue**
- **Congress to check on Interstate tollroads?**
- **Is Blatnik avoiding Massachusetts?**

● **New housing legislation is coming at a time when the industry can stand some stimulus.** A report by the Federal Reserve Board estimating intentions of consumers to buy houses is not optimistic. The Fed report shows that 5.1% of those queried plan to buy a house in the next 12 months; that compares with 5.3% in April a year ago. In actual purchases, first quarter sales matched last year's first quarter total.

The Senate is ready to vote a program giving aid in all areas—increased mortgage-buying authority for Fannie May, longer-term mortgages for homes and renovations, other aids, as well as an increase in public housing to 100,000 units a year.

There is one bit of controversy in the Senate bill. The Banking Committee approved a provision for federal aid for mass transit systems. The Administration has not approved of the kind of aid the committee wants to give cities, so the issues will be debated before a study by the Commerce Department and HHFA is completed. President Kennedy had planned to make recommendations for consideration next year.

The housing bill's provision would provide $100 million in low-cost, long-term loans to communities for preserving and improving transportation services, and would earmark $50 million of urban renewal funds for pilot mass transit projects.

—

● **The House Public Works Committee is overriding objections of the Bureau of Public Roads to legislation requiring congressional review and approval whenever a tollroad, bridge or tunnel is planned into the Interstate system.**

At present, BPR can approve state requests to subject portions of the Interstate system to toll charges. States that do this automatically lose an amount of federal matching funds proportionate to the mileage of freeway deleted. But some states are willing to suffer this loss if they can use a "toll trap" at an Interstate interchange and thus force Interstate users to help pay for connecting state-financed tollroads.

The proposed legislation would require approval by the Senate and House Public Works committees. BPR objects to any attempt by Congress to pass on specific highway routes.

—

● **Republicans on the House highway investigating subcommttee again demand hearings on the Massachusetts road scandal.** They say it "appears to be the worst in the nation." But Chairman John A. Blatnik doesn't intend to grant their request.

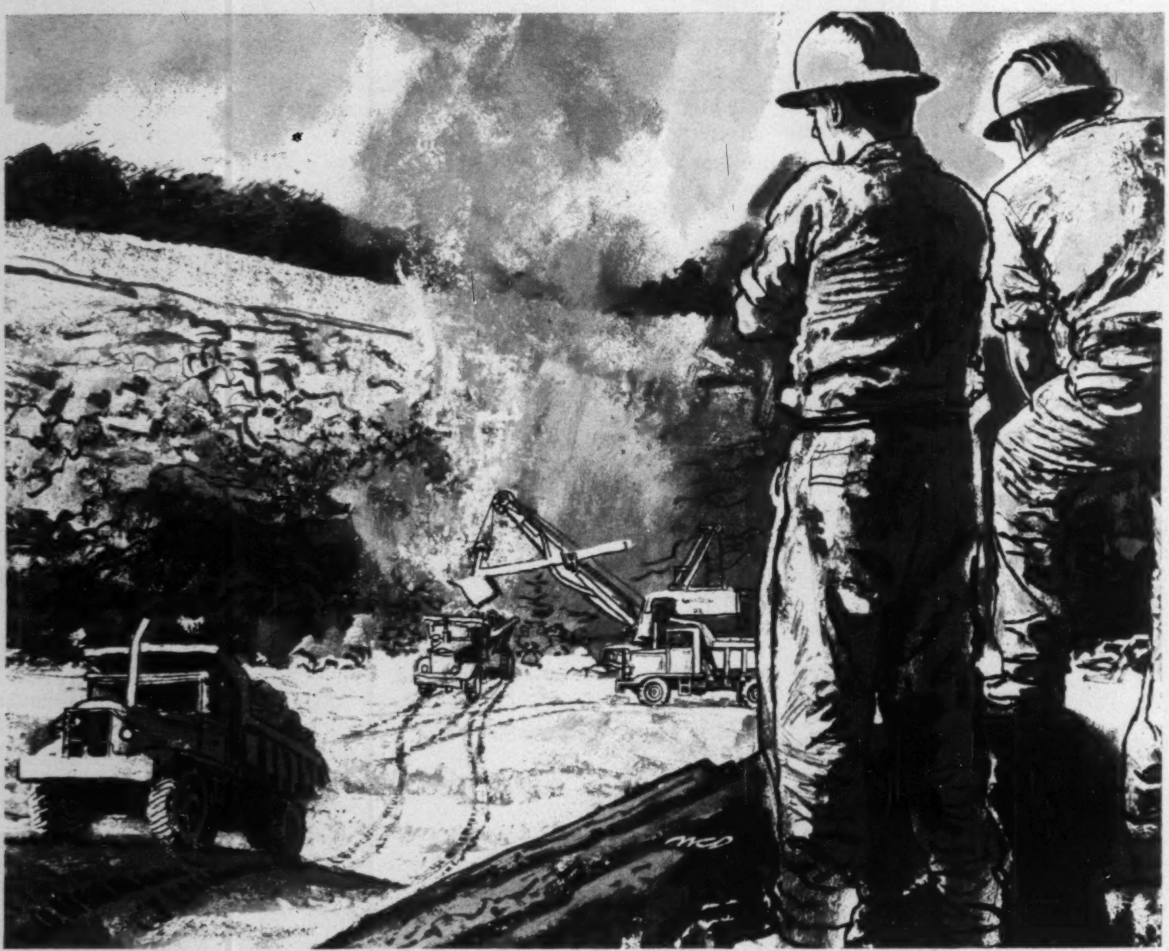
The subcommittee's next round of hearings will deal with New Mexico and a $1-million road failure near Lordsburg. Committee investigators are working in Massachusetts, but there is no indication when hearings will begin.

The latest Republican demand was prompted by revelations that President Kennedy, when he was a senator, and House Democratic leader John W. McCormack (Mass.) had written letters on behalf of a highway consultant who since has become a central figure in the Massachusetts scandal.

At the time the letters were written, about two years ago, the consultant, Thomas Worcester, was under indictment for federal income tax evasion. He has since been convicted of deducting as a business expense payoffs he made to obtain work in Massachusetts.

PROTECTION IN DEPTH

How it helps cut compensation costs



Had any accidents down on the floor lately?

Working a deep cut can be dangerous. Noise and congestion team up with other hazards to cause bodily injuries and raise your insurance rates. Liberty Mutual safety engineers are experienced in studying work sites and setting up traffic patterns. They know machines and they know men, and they can help you safeguard both to improve your odds against accidents and losses.

Construction engineering is just one of the many Liberty Mutual services that add up to protection in depth. For example, Liberty also maintains a loss prevention research center, provides employee training aids, helps policyholders set up health programs for their workers. When accidents do happen, specialized medical services are available — two rehabilitation centers, a special paraplegic ward, and diagnostic aid from leading orthopedic specialists all across the country.

Last year, protection in depth helped save Liberty Mutual workmen's compensation policyholders many millions of dollars.

To find out how Liberty's protection in depth can help you save money, too, just call the nearest Liberty Mutual office.

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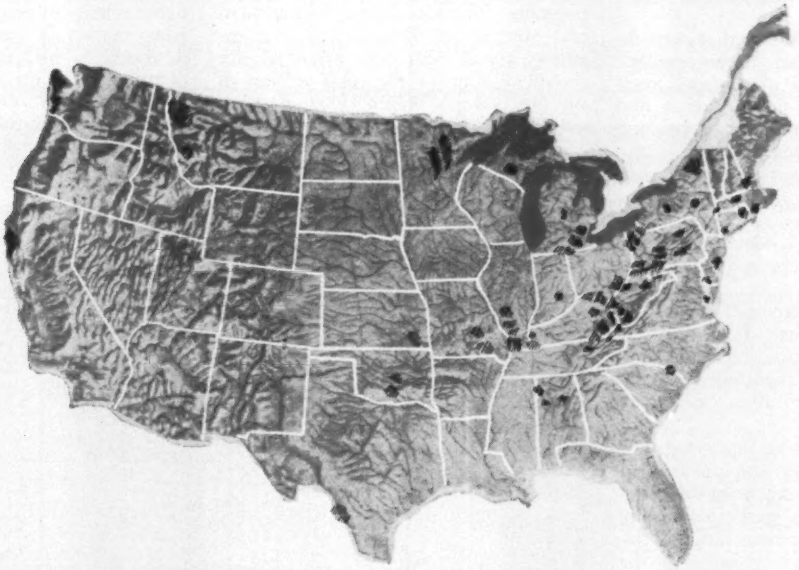


It's up to local areas of labor surplus (shaded) to start . . .

A Building Boom in Depressed Areas

These Are the Labor-Surplus Areas*

Alabama: Florence-Sheffield, Gadsen, Jasper.
Alaska: Anchorage.
California: Ukiah.
Conn: Ansonia, Bristol, Danielson.
Illinois: Cairo-Metropolis, Centralia, Harrisburg, Herrin - Murphysboro - W. Frankfort, Litchfield, Mt. Vernon.
Indiana: Evansville, New Castle.
Kansas: Pittsburg.
Kentucky: Corbin, Hazard, Hopkinsville, Madisonville, Middlesboro-Harlan, Morehead-Grayson, Paducah, Paintsville-Prestonburg, Pikeville, Ky.-Williamson, W. Va.
Maine: Biddeford-Sanford.
Maryland: Cambridge, Cumberland, Hagerstown.
Massachusetts: Fall River, Lowell, New Bedford, North Adams.
Michigan: Adrian, Bay City, Detroit, Flint, Marquette, Monroe, Port Huron.
Minnesota: Brainerd-Grand Rapids, Hibbing-Virginia.
Missouri: Flat River, Washington.
Montana: Butte, Kalispell.
New Jersey: Atlantic City, Bridgeton, Long Branch, Ocean City-Wildwood-Cape May.
New York: Amsterdam, Auburn, Gloversville, Jamestown-Dunkirk, Ogdensburg-Massena-Malone, Plattsburgh.
North Carolina: Fayetteville, Lumberton.
Ohio: Athens-Logan-Nelsonville, Batavia-Georgetown-West Union, Cambridge, Portsmouth-Chillicothe.
Oklahoma: McAlester, Muskogee.
Pennsylvania: Altoona, Berwick-Bloomsburg, Butler, Clearfield, DuBois, Indiana, Erie, Johnstown, Kittanning-Ford City, Lewiston, Meadville, New Castle, Pittsburgh, Pottsville, St. Mary's, Sayre - Athens - Towanda, Scranton, Sunbury - Shamokin - Mt. Carmel, Uniontown - Connellsville, Wilkes Barre-Hazleton area.
Puerto Rico: Mayagúez, Ponce, San Juan.
Rhode Island: Providence-Pawtucket.
Tennessee: La Follette-Jellico-Tazewell.
Texas: Laredo.
Virginia: Big Stone Gap-Appalachia.
Washington: Aberdeen, Anacortes, Port Angeles.
West Virginia: Beckley, Bluefield, Charleston, Clarksburg, Fairmont, Huntington, W. Va.-Ashland, Ky., Logan, Morgantown, New Martinsville, Oak Hill-Montgomery, Point Pleasant, W. Va.-Gallipolis, Ohio, Roncevert-White Sulphur Springs, Welch, Wheeling.

**Defined by the U.S. Labor Department as having "substantial and persistent unemployment."*

Policy-makers for the government's new area redevelopment program expect the bulk of almost $400 million authorized by Congress to be spent in construction.

When will this small-scale boom get under way? Probably not until later this year, for there are steps that must be taken before a specific project can be authorized under the area redevelopment program.

First, the Area Redevelopment Administration, the Commerce Department's new arm to blot out depressed areas, must determine whether a given sector of the country is eligible to receive the government aid.

The designation of the first 20 depressed areas is expected to be made any day now. Most of these will be urban areas that have long been classified by the Labor Department as areas of substantial and persistent labor surplus. Later, similar designations for areas where the main criterion will be not so much unemployment but a general low standard of living and low income levels.

The next step must come at the local level. The Redevelopment Act places great responsibility on local initiative. Local leaders must develop an over-all economic development plan (OEDP) for the area. This plan must be endorsed by the state and approved by

Washington before a project can start.

Some local leaders and some construction companies are already extending feelers to government officials to determine what types of projects might be acceptable.

Some proposed projects that seem to be getting tentative encouragement from officials include a technical training school, a sewage pump station, and perhaps an electric power generating station and a shopping center.

The Redevelopment Act authorizes loan funds of $200 million for industrial and commercial projects in redevelopment areas. Under the act, the program's administrator can make loans to finance the purchase or development of land and facilities for industrial or commercial use. Loans may be used to construct new buildings and plants, rehabilitate abandoned or unoccupied ones, and to alter, convert, or enlarge existing ones.

Each project must be supported by a combination of public and private participants. The law encourages a maximum amount of local participation and private capital in commercial and industrial projects. In no event may the federal government's share be more than 65%.

A typical project, for example, might be financed with 50% from private lenders, 10% from a state development fund, and 5% from a local development corporation—leaving 35% for financing by the federal government. Actual percentages would vary depending on the facts in a particular case.

All industrial and commercial loans are subject to a number of statutory requirements:

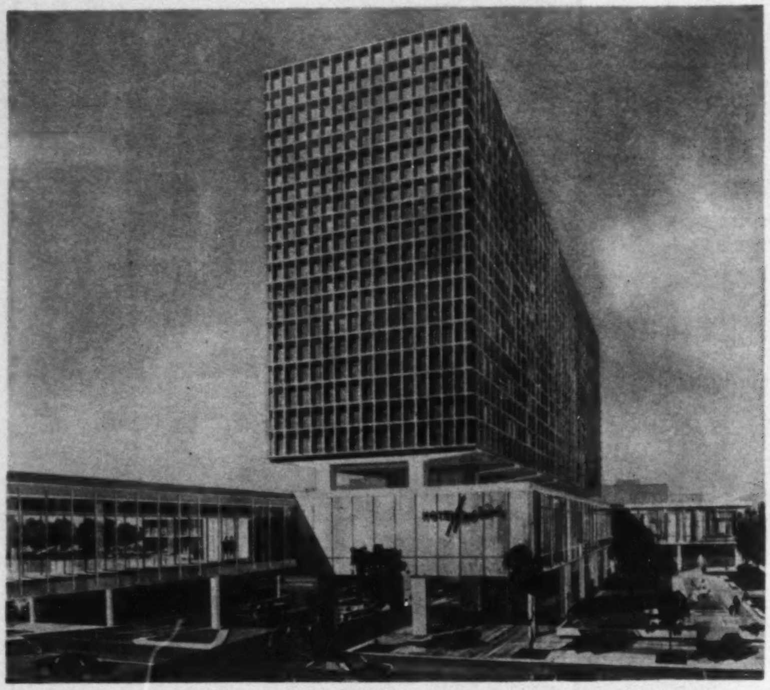
- Financial assistance won't be extended for working capital.
- Financial help will not be given for businesses or industries relocating—either completely or partially—from one area to another.
- To be approved, a project must be "reasonably calculated" to provide "more than a temporary alleviation" of unemployment or underemployment.
- Financial aid under the redevelopment program must not be otherwise available from private lenders or other federal agencies "on reasonable terms."
- A direct loan won't be made unless a participation loan is determined to be unfeasible.

One major section of the redevelopment program will include loans and grants for public facilities needed to establish or expand specific commercial plants or industrial facilities. There are $100 million in loans and $75 million in grants for public facilities.

Loan conditions are similar to those for industrial and commercial projects, except in loan periods and interest rates. Industrial and commercial loans will be made for 25 years at a current interest rate of 4⅜%. Loans for public projects will be made for 40 years at 3½%.

Some operating problems—both internal and external—already are creeping into Washington's redevelopment program. The Commerce Department and Agriculture Department, for example, are at odds over which agency should administer the rural section of the program. A White House decision may be necessary to resolve the dispute.

Deciding which areas are depressed is also a sticky problem. "Substantial and persistent unemployment" is the criterion used now. But this doesn't always work fairly. In New York, for example, Schenectady suffers from heavy long-term unemployment. But Schenectady is considered part of the labor market of nearby Albany, which is relatively prosperous. Therefore it doesn't qualify for aid. But should the communities of Amsterdam and Gloversville be added, the over-all area would show a labor surplus, and qualify for aid as a depressed area.



Work on a 12-story hotel will start this summer as Houston's . . .

$125-Million Center Takes Shape

Houston's downtown building boom will get another boost with construction of the $6-million Hotel America, second building in the $125-million Cullen Center. Construction of the hotel will start this summer.

The first Cullen Center unit, known as the 500 Jefferson Building, includes a 21-story office structure and an adjoining five-story parking garage. This $15-million project is now under construction.

The 12.5-acre downtown site will eventually have seven air-conditioned buildings—two apartment towers, three office buildings, the hotel and a parking garage. Air-conditioned, glass-enclosed pedestrian bridges will connect all major buildings at the second floor level.

According to Welton Becket & Associates, the architects-engineers and master planners for the project, each building will be different, but there will be a unifying theme in precast concrete wall panels with exposed quartz aggregate.

The reinforced concrete frame of Hotel America will feature single-bay bents with two cantilevers carrying a 12-ft building overhang at the third floor. The precast concrete facade will form a rectilinear grid.

The precast walls of the steel-framed office building, now under construction, will present a more striking wall pattern than Hotel America. Panels from the third floor to the twenty-first floor form the frames for deep-set gray-tinted windows and backup black tempered spandrel glass. Above the twenty-first floor, solid precast panels, 6 in. thick and 34 ft high, will enclose the mechanical space and form a 4-ft parapet at the roof.

Structural engineers for Hotel America are Lockwood, Andrews & Newnam of Houston; structural engineers for 500 Jefferson are Stacy & Skinner of Los Angeles.

College and school aid bills offer this . . .

Outlook: $4 Billion in School Buildings

Bigger programs in construction of college dormitories and classrooms are on their way to probable enactment in Congress.

And if the issues of aid to parochial and segregated schools are successfully sidetracked, federal grants for public school construction and teachers' salaries will pass the Senate handily and probably squeak through the House by a handful of votes.

All this adds up to potential expenditures of several billion more dollars on construction for education in the next three to five years.

A bill providing $300 million a year for five years—$180 million in grants, $120 million in loans—for construction of college classrooms, laboratories and other academic facilities has cleared the House Education and Labor Committee and should pass the House by the middle of June. Trimming down a scholarship provision from $900 million to $300 million has removed much of the opposition, and the Senate is expected to pass it too. As a key senator put it, "Everybody loves the colleges this year."

The loans and grants would be parceled out to the states, and state commissions would distribute them to colleges on the basis of need. Colleges would match the funds $2 for $1.

States would get funds on a formula based on both the number of students enrolled in college and the number enrolled in high school. Thus states with the biggest college enrollments would get the lion's share. Under this formula, New York and California would each get $16.1 million a year, Pennsylvania, $11 million, and Alabama $3 million.

A big increase in the revolving fund for college housing loans, from $1.6 billion to $3 billion over five years, was passed by the Senate Banking Committee this week as part of the omnibus housing bill. It is expected to have fairly clear sailing in both the Senate and the House.

Much trickier is the $2.5-billion aid-to-public-schools measure. If it avoids the snares of religious and racial issues, it will spur building of an estimated 40,000 to 70,000 extra classrooms over the next three years that would not otherwise be built, depending on how much of the federal money is allocated to teachers' salaries.

The Senate bill would provide $850 million each year for three years in grants for either construction or teachers' salaries, as the state chooses. The states do not have to match the funds, but must increase local efforts or lose some of the federal money. The bill approved by a House subcommittee is about the same, except that it provides $720 million the first year, $828 the second and $936 the third for the same total.

The House bill follows the Administration's recommendation on how money is to be allocated among the states. It is based on school-age population and income-per-capita in the state. A state could get from $12 to $24 per pupil depending on the state's wealth. The Senate widened the gap between wealthy and poor states to a 3-to-1 instead of 2-to-1 ratio, but threw in more money for the big eastern states by counting parochial students even though parochial schools receive no money.

The differences between Senate and House bills at this point are considered nothing that cannot be compromised by a conference committee if both houses act.

There is also increasing support for a move to provide some construction money for parochial schools in a separate bill. This would be done by amending the National Defense Education Act, which provides loans for both public and private schools to buy equipment for teaching of science, mathematics and languages. The idea is to expand this to provide loans for construction of classrooms for those subjects, perhaps as additions to existing schools or separate wings for new schools. Presumably this would avoid the constitutional question by earmarking the money for purposes essential to "national defense."

The school-aid bill has been plagued for years by something mysteriously known as Murphy's Law which says: "If something can go wrong, it will." Thus predictions of passage are always hedged.

At week's end it looked as if a fight over aid to segregated schools could once again dump the whole program. Senate Democratic leaders predicted they would defeat any amendment denying aid to segregated schools. But now that the issue has been raised publicly again, opponents of school aid in the House may use it to defeat the bill there. Rep. Adam Clayton Powell (D., N. Y.), Harlem Congressman who usually offers the amendment, does not intend to do so this year; but Republicans may do so themselves.

The whole thing blew up when it was learned that some Democratic leaders in the Senate were considering support of "a reverse Powell amendment" by Sen. Herman Talmadge (D., Ga.) specifically forbidding the government to withhold aid from a segregated school. Sen. Lee Metcalf (D., Mont.), a staunch supporter of aid, was induced to offer the amendment but backed off when northern Democrats and Republicans reacted against it.

Even if the bill now passes the Senate intact, the issue has aroused emotions that may once again defeat school aid in the House.

BRI ponders the question . . .

How Do New Materials Stack Up?

The Building Research Institute delved into the present status of several new materials—adhesives, sealants plastics, pressure-sensitive tapes— at its 1961 Spring Conference last week in Washington.

It also tackled the problems of weatherproofing thin-shell concrete roofs, and weather protection and maintenance of public entrance doors.

Analysis of thin-shell concrete roofs indicated that weatherproofing requirements were not greatly different from those for common types of concrete decks. However, problems arising from geometry of shapes used and higher heat and moisture transmittance are more severe. The biggest complaint of designers is that manufacturers and applicators of coatings and sealants do not guarantee the formulation to be used or that it will perform as claimed.

In another session, pioneering applications of pressure-sensitive tapes were described. Included were butt joints in asbestos-cement siding for a factory, joints between plywood roof panels for a school and joints in aluminum domes.

Edmund R. Purves, former executive director of the American Institute of Architects, received the F. Stuart Fitzpatrick Memorial Award for his contributions toward unification of the various elements of the building industry.

The BRI elected Leon Chatelain, Jr., president. He is a partner, Chatelain, Gauger & Nolan, architects, Washington, D. C.

Partnership Woes Spark a Drive

A federal program for construction of civilian nuclear electric power plants is being pushed in Washington—by the Democratic members of the Joint Congressional Atomic Energy Committee, along with support from Chairman Glenn T. Seaborg of the Atomic Energy Commission.

The move is under way in the hearing rooms of the Joint Committee, which is considering proposals for the annual legislation authorizing nuclear construction.

The renewed efforts to vote federal funds for nuclear power reactors arise from conclusions of both committee leaders and Mr. Seaborg that the Eisenhower Administration policy for private industry partnership in developing nuclear electricity has fallen down.

Committee Chairman Chet Holifield (D., Calif.) says the partnership approach has "delayed the development of atomic power and allowed the privately owned utilities to dominate a program largely financed with public funds."

Mr. Seaborg acknowledged in his recent testimony to the committee that the existing program has been "disappointing."

While Republicans on the Joint Committee still defend the Eisenhower policy, the Democratic majority, with Mr. Seaborg's backing, will try to vote funds for federal construction beginning in fiscal 1962. To get their way, however, the Democrats still must win the support of President Kennedy. To date, the President has not placed civilian electric power high on his priority list of legislation for this session. And his budget for fiscal 1962 calls only for continuation of the $250 million a year for reactor construction and operation that was the legacy of the Eisenhower budget in January.

There have been no new construction starts in atomic electric power for two years. Only those projects begun some years ago will start to feed electricity into existing power systems this year and next (see tables).

There are these important reasons for the current state of affairs:

- Many leaders in Congress accept the feeling of the oil and coal industries that there is no need for forced development of atomic electric generating capability, despite the language of the 1958 Atomic Energy Act that calls for economic atomic power by 1968. That is the "national goal that Representative Holifield and his Democratic colleagues on the committee say is a pledge that should be met.
- Industry and private utilities have run into trouble on design, and in several cases snarls have developed over site locations.
- The pending litigation before the U. S. Supreme Court that will test the licensing and safety policies of the Atomic Energy Commission (ENR May 18, p. 42) is being watched to determine whether the Commission will have to set up new procedures for approving construction and operation of atomic reactors.

(The court case concerns the Fermi fast-breeder reactor at Lagoona Beach, Mich. A group of labor unions filed suit on grounds that the Commission failed to establish safety of the reactor before awarding a construction permit to the Power Reactor Development Corp., composed of Detroit Edison and 20 other private utilities and manufacturers. The legal argument has not delayed construction of the plant, but whether it will be permitted to go into operation hangs on the Supreme Court's decision.)

The delays, whatever the reasons, give critics their chance to win federal construction of commercial-sized reactors. Many of the critics have wanted a federal program all along, some on grounds that private industry could not take the financial and design gambles until A-power economy was proved, others on grounds that, like the nation's major rivers, the government-discovered atom should be developed for public power.

Representative Holifield says he predicted from the very beginning of the government-industry cooperation that the burdens imposed on a single group or groups of electric companies would prove to be too great.

"It has taken at least five years to complete the first large plant under the partnership approach," Representative Holifield says. He refers to the Yankee Atomic Electric Co. project, built by a group of New England utilities.

Mr. Holifield distinguished that project from the program of Commonwealth Edison Co. and Consolidated Edison Co., which undertook construction with their own money. The Commonwealth reactor at Dresden, Ill., is operating. The Con-Ed Plant at Indian Point, N. Y., is nearing completion. Though privately financed, these two reactors were built too slowly, Mr. Holifield believes.

He aims his attack at projects on which the federal government, in cooperation, failed even to begin construction, such as the Florida West Coast nuclear group's heavy-water-moderated, gas-cooled prototype. AEC canceled this project early in May after more than three years of research and development work.

"A number have been canceled, and others are seriously behind schedule," he said.

The Democratic majority on the committee is talking of reviving the approach taken in the Gore-Holifield bill, which passed the Senate in 1956 but was defeated in the House of Representatives.

Where A-Power Partnership Is Working

Shippingport	60,000-kw pressurized-water type, government-financed, power distributed by Duquesne Light Co.	Operating.
Dresden	180,000-kw boiling-water type, privately financed, power distributed by commonwealth Edison Co.	Operating.
Yankee	110,000-kw pressurized-water type, jointly financed, power distributed by a group of New England private utilities.	Operating.
Indian Point	275,000-kw (including 112,000 kw from conventional steam superheaters) pressurized-water type, privately financed, power distributed by Consolidated Edison Co.	Near completion.
Fermi Fast Breeder	100,000-kw sodium type, jointly financed, power distributed by Detroit Edison.	Near completion.
Elk River-AEC	22,000-kw boiling-water type, government-financed, power distributed by Elk River Rural Cooperative.	Near completion.
Piqua-AEC	11,400-kw organic moderated and cooled type, government-financed, power distributed by the City of Piqua.	Near completion.

for Federal A-Power

That legislation called for federal construction of intermediate prototype-sized plants and federal operation at the outset. It authorized $400 million, generally for construction in remote areas on public lands.

AEC Chairman Seaborg has sketched out the way he would have the federal government undertake development.

"The AEC, using fixed-price competitive bidding among private contractors, would build complete plants on publicly or privately owned utility power grids," Mr. Seaborg said. "The utility would operate the plant and buy electric power from the plant for a fixed period at some predetermined rate arrived at under competitive bidding of the utilities.

"At the end of the fixed period, the utility would be committed to purchase the plant at a price which would allow it to compete with conventional plants of the same size."

Mr. Seaborg wants to start such a program in fiscal 1963, rather than in fiscal 1962. He believes that he can get private industry to cooperate in constructing three designs authorized by Congress last year. They are the 50,000-kw improved-cycle boiling-water reactor; the 20,000-kw small-size pressurized-water reactor, and the 50,000-kw organic-moderated reactor.

Public power groups, including the American Public Power Association, want a federal program now. They are urging Congress to start by voting money now for the dual-purpose reactor at the Hanford, Wash., plutonium facility. Congress has authorized the plant, but has not appropriated the money. The Administration supports the Hanford dual-purpose installation, although critics say the electricity will not be needed once conventional power plants, hydro and steam, come into operation.

Rep. Jack Westland (R., Wash.) says the major reason for delays under the partnership program has been site selection. He says the AEC should set forth non-ambiguous site and reactor safety criteria so that industry would know what it had to do.

"If you could solve the site and safety problems," Mr. Westland says, "you could be building the Southern California Edison, the Pacific Gas & Electric, and the Los Angeles-Pasadena projects right now.

"What good would it do for the government to build reactors [at remote test sites] if they can't later be satisfactorily located on power grids?"

Some nuclear experts hold that materials problems are the true obstacles to overcome in gaining economic feasibility for the atom.

They point out that Oak Ridge National Laboratory has also run into development problems, such as those encountered when its aqueous homogeneous reactor experiments popped core tank holes. These problems are similar to those materials problems encountered by Commonwealth Edison and General Electric at the Dresden Plant.

Where A-Power Partnership Has Failed

Improved-cycle boiling-water reactor (ICBWR)	50,000-kw plant, government-financed, power to be distributed by City of Los Angeles.	
Small-size pressurized-water reactor (SSPWR)	20,000-kw plant, government-financed, power to be distributed by City of Jamestown, N. Y.	City withdrew last March.
Organic-moderated reactor (OMR)	50,000-kw plant, jointly financed.	AEC invitation for joint construction drew no private utility bids before May deadline.
Full-scale pressurized-water reactor	360,000-kw plant, privately financed, power to be distributed by Southern California Edison Co.	Utility unable to get Camp Pendleton site clearance.
D-20-moderated gas-cooled prototype	50,000-kw plant, jointly financed, power to be distributed by Florida West Coast nuclear group.	AEC terminated project due to technical and economic uncertainties.

Polar A-Power

It's cheap compared to $4.50-per-gal diesel fuel

The Navy expects to "make a profit" from nuclear power plants installed in Antarctica.

Capt. Harry Stevens, Jr., CEC, USN, announced this conclusion in a symposium on polar engineering at the 41st annual meeting of the Society of American Military Engineers in Washington, D. C., last week.

During the past five years the Navy's Seabees have built all of the facilities required by the National Science Foundation for its studies in Antarctica. Now the Navy plans four nuclear plants—two 1,500-kw units at McMurdo Naval Air Facility near the coast and two 1,000 kw units at inland stations.

According to Captain Stevens, "Economic studies indicate that nuclear power in Antarctica will actually make a profit, requiring only four to six years to self-liquidate." Reason: It costs as much as $4.50 to deliver a gallon of diesel fuel to interior stations; and one nuclear core will replace more than two million gallons of such fuel.

Foundation excavation for the first McMurdo plant was completed this past construction season. The plant will be shipped to the Antarctica this fall; it should be in operation 75 days after the ship reaches McMurdo.

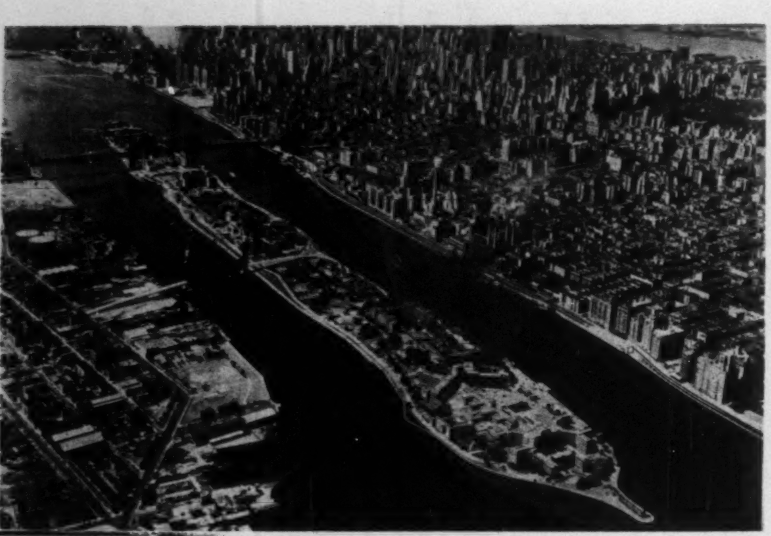
A saltwater distillation plant will also be installed at McMurdo this fall. It will use steam from the nuclear power plant.

The Navy will pump salt water from beneath the ice of McMurdo Sound for distillation. A combined saltwater intake line and brine discharge line will pierce the 10- to 15-ft thickness of ice. Heat from the brine will keep the system from freezing.

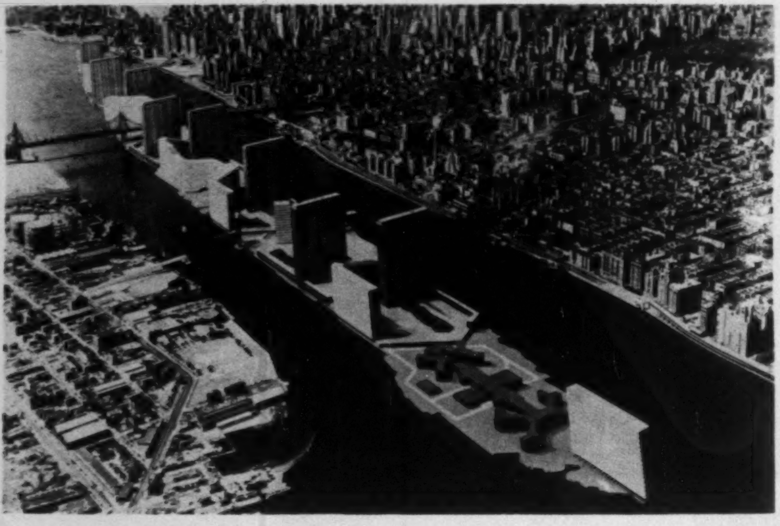
The McMurdo plant will not be the first polar region nuclear plant. An Army-built 1,800-kva unit went critical at Camp Century in Greenland last October.

According to Robert R. Philippe, another symposium speaker, this plant has been in almost continuous operation since then with considerable savings in fuel cost.

Mr. Philippe dwelt extensively on the difficulty of building on the thick snow layer that covers the Greenland ice cap. The snow is comparable to soft, sugared sandstone, but does not conform to known laws of mechanics. Walls of tunnels for access between station units will gradually squeeze in. The only economical way to combat this is to overexcavate and expect after a year or so to shave off the walls, Mr. Philippe said.



For an Island Off Manhattan . . .



. . . A $450-Million Housing Dream

A $450-million plan for an apartment complex in New York City would convert Welfare Island in the East River into a self-contained community for 70,000 persons.

Located within 1,000 ft of midtown Manhattan, the long, narrow island presently contains abandoned buildings, hospitals, nurses homes and other welfare institutions. Only a geriatrics hospital would remain under the plan proposed by Victor Gruen Associates, architects for the developers.

East Island, the new name proposed, would be a pedestrians' paradise. The developers plan to ban private cars from the island's roads, which would be reserved for fire trucks, ambulances and other emergency vehicles. Residents would commute the short distance to Manhattan and Queens via subway, moving sidewalk on the Queensborough Bridge, bus and taxicab. Multi-deck parking garages in nearby Queens would store tenants' automobiles.

Outstanding design features of the proposal include:

- A concrete plaza raised 22 ft above grade and roofing a two-level structure extending over much of the 167-acre site. Schools, stores, restaurants, churches and other community facilities would be placed under the plaza.
- Apartment towers, some with serpentine plans and stepped roof levels, rising from eight to 50 stories above the plaza and four-story duplexes along the platform periphery.
- A passenger conveyor system designed to travel the island's two-mile length in seven minutes.

The narrow width of the island (about 700 ft) makes the passenger conveyor an ideal means of travel. Mounted on a continuous elevated structure adjoining the pedestrian concourse, the electrically powered conveyors would speed seated passengers between stations spaced about 900 ft apart. At each station the conveyor would decelerate to the speed of a moving sidewalk, so passengers can get on and off.

Several five-acre parks and a high school campus would interrupt the concrete platform. At one end of the island, an apartment tower for elderly tenants would provide easy access to the geriatrics hospital.

The development would sidestep at least two problems facing redevelopers in Manhattan: There's no one to relocate (the few who live on the island now could remain); and construction equipment and materials can come and go easily.

Barges could transport materials manufactured near river sites; the typical Manhattan apartment project requires truck delivery in swarming traffic.

City ownership of the land eliminates the usual write-down subsidy for land acquisition. The federal government would bear two-thirds of the estimated $35-million public capital cost; the state and the city would share the balance.

Public costs would cover construction of schools, parks, fire and police stations, libraries and other supporting facilities. The developer would finance the estimated $420-million cost for all residential and commercial construction and internal transportation facilities.

Principals in the East Island Development Corporation are Victor Gruen; Frederick W. Richmond, industrialist and financier; and Roger Stevens, real estate developer.

After the announcement of the East Island proposal, an earlier plan to build a residential community on Welfare Island came to light. Builder Francis J. Kleban of New York City revealed his plan to build Sutton City, a residential community of 2,400 units. This proposal, made in March 1959, received an "unenthusiastic" response from the City Planning Commission, according to Mr. Kleban.

Mr. Kleban demanded that the city consider his proposal before the East Island plan. Unlike East Island, Sutton City would require no public grants, loans or tax abatement, said Mr. Kleban.

New York City architect William Lescaze designed Sutton City's four 31-story apartment towers.

Still another plan proposed for Welfare Island is Terrace City, a project designed to house over 20,000 United Nations personnel in five buildings shaped like truncated pyramids. It would also contain a 1,000-room hotel.

Prof. Percival Goodman of Columbia University, aided by six graduate students, designed Terrace City.

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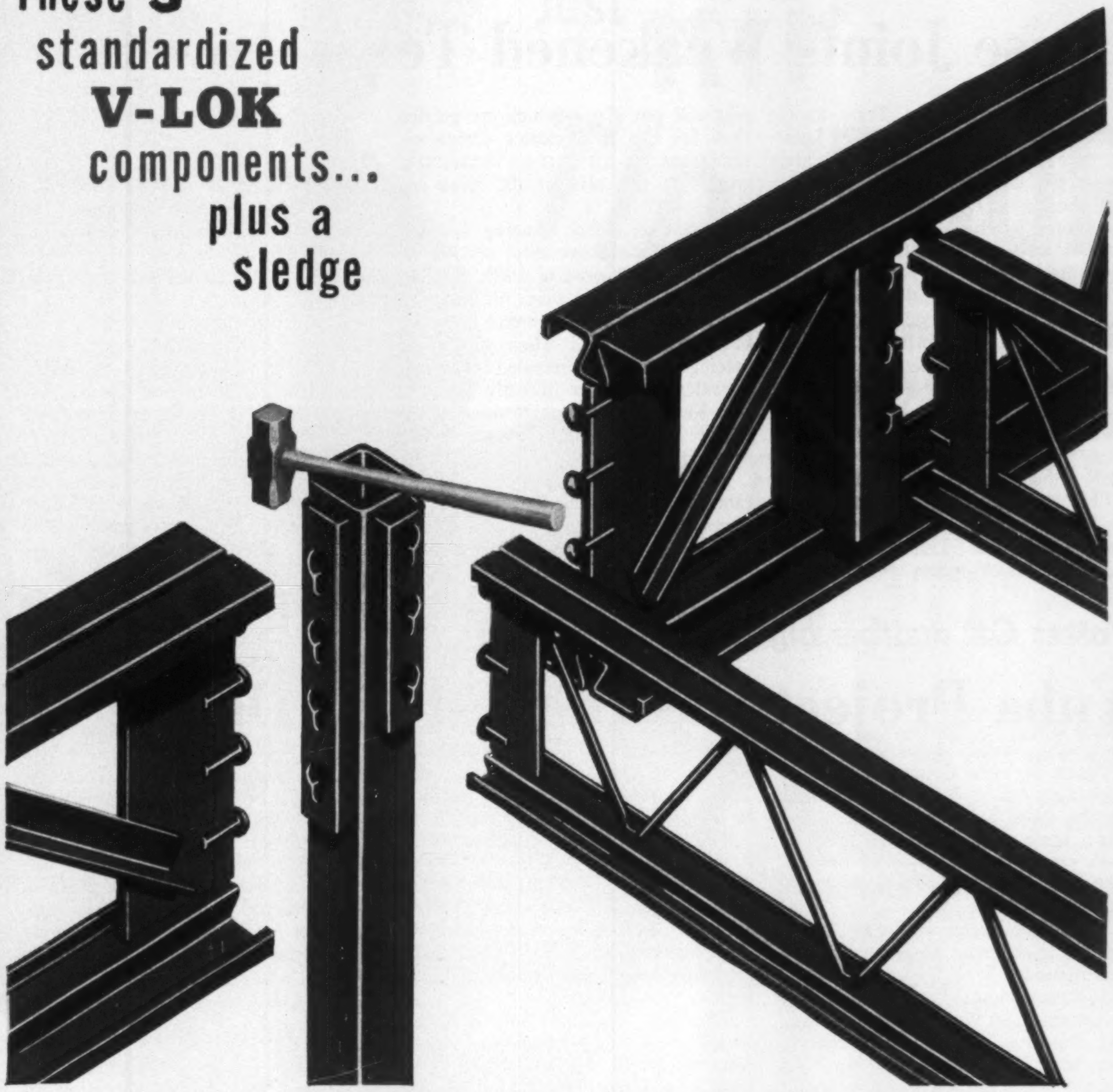

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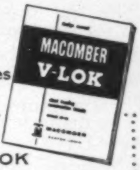

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The last word on the failure . . .

Loose Joints Weakened Texas Tower

The designers of the Texas tower that collapsed in the Atlantic last January were never satisfied with its stability. Loose pin connections were a major contributing factor. These facts were pinpointed by the testimony of Theodore M. Kuss and Philip C. Rutledge of the consulting firm of Moran, Proctor Meuser & Rutledge, the concluding witnesses of the Senate Preparedness Subcommittee hearings.

Mr. Kuss told the senators that he officially reported to the Air Force on Apr. 1, 1960, that "the loose pin connections are a very serious matter since there seems to be no way of satisfactorily remedying this condition.

"Furthermore, the condition is one which will tend to worsen at an increasing rate with time. This is because the looseness induces impact stresses in the pins and pin plates, which are greater than for the non-dynamic design assumptions and will become increasingly greater as the play in the joint enlarges."

Even after added bracing was installed on the above-water section of the tower in August of 1960, the Air Force and Mr. Kuss were still trying to figure out some way to correct the loose pin situation. And when the lower bracing damage was revealed by an underwater inspection in early January, Mr. Kuss told the congressional committee, "I was almost surprised the tower stood up."

Mr. Rutledge testified that "Hurricane Donna subjected the tower to forces greater than design criteria forces. These forces broke two of the panels of bracing in the tower. The tower was in a very dangerous condition. It definitely did not have strength to resist the design criteria, and it could resist only something very much smaller."

Mr. Rutledge, however, refused to blame the construction contractor, J. Rich Steers, for poor construction on the tower. "With some minor deficiencies," Mr. Rutledge said, "the tower was constructed properly and in accordance with specifications."

At the conclusion of the hearings, committee chairman John Stennis (D., Miss.) summed up his reaction like this: "It is an amazing series of events to me. From the time it was upended until it fell there never was a time, except at short intervals when, as I view the testimony, the tower came up to anything like its intended design strength."

Voters OK another big Coast water plan . . .

Yuba Project Has Highest Fill Dam

Voters in Yuba County, Calif., last week approved a huge water project on the Yuba River that includes five dams, three powerhouses, 10 miles of main canals and 41 miles of tunnels. One of the dams will be a record-breaking rockfill.

The Californians authorized $185 million in revenue bonds to finance construction.

A report prepared earlier this year by International Engineering Co., Inc., San Francisco, estimated construction costs at $151.3 million. But the Yuba County Water Agency, which will build the project requested a $185-million bond authorization to allow for contingencies.

A construction start is possibly two years away. The engineering report said the project would take four years to complete.

The drainage area of the Yuba River covers 1,350 sq mi in northern California between the American and Feather rivers.

The river contributes about 2 million acre ft a year in runoff. But most of that wastes away, since only 300,000 acre ft of the runoff is in the summer when it is most needed.

Both the U.S. Bureau of Reclamation and the Corps of Engineers have studied the need for development of the river, both for flood control and multiple-purpose use. But federal or state action would be years away; the Yuba County Water Agency decided to act now and get an early start.

The key unit of the project would be a new Bullards Bar Dam. A rockfill structure, it will rise 630 ft to top by 93 ft the Bureau of Reclamation's Trinity Dam in California—presently the highest embankment ever built. California's proposed Oroville Dam would be 730 ft high.

The new Bullards Bar Reservoir would store 93,000 acre-ft of water from the North Yuba River and diversions from Oregon Creek and Middle Yuba. A 130,000 kw powerhouse will be on the left bank, adjacent to the downstream toe of the dam.

Water from the Middle Yuba River will be diverted by the Hour House Dam through a 3.7-mile-long tunnel to Oregon Creek. Log Cabin Dam on Oregon Creek will collect the water from the two streams and convey it to Bullards Bar Reservoir through a 1.3-mile-long tunnel.

A small dam below the Bullards Bar powerhouse will divert water through a 22,400-ft-long tunnel to a new Colgate powerhouse with an installed capacity of 114,000 kw. This plant will be located next to PG&E's existing Colgate power plant, which will continue to operate.

A new 35,000-kw powerhouse at Narrows will be constructed just below the existing Englebright Dam. Diversion dams will be constructed to irrigate about 500,000 acres.

Bullards Bar, Colgate, Oregon Creek and Middle Yuba diversion projects will cost $124.8-million; New Narrows powerhouse, $7 million; irrigation diversion dam, $6.3 million and main canals and drainage $13.1 million.

U.S. Advances Road Cash; $818 Million Goes to States

President Kennedy has ordered another speedup in the allocation of federal-aid highway money. The government is releasing immediately $818 million in highway money that ordinarily would have gone out July 1.

States with the jobs and the matching funds ready can therefore get a six-week head start on the summer construction season.

This makes the fourth time in a year that the U. S. has opened its road purse sooner than scheduled. President Eisenhower began the pattern last year, and it has been followed in every quarter since.

Here are the states that get the biggest chunk of this disbursement: California, $72 million; Ohio, $46 million; New York, $41 million; Illinois, $38.8 million; Texas, $38.6 million; Virginia, $29 million; New Jersey, $23 million; and Missouri, $22 million.

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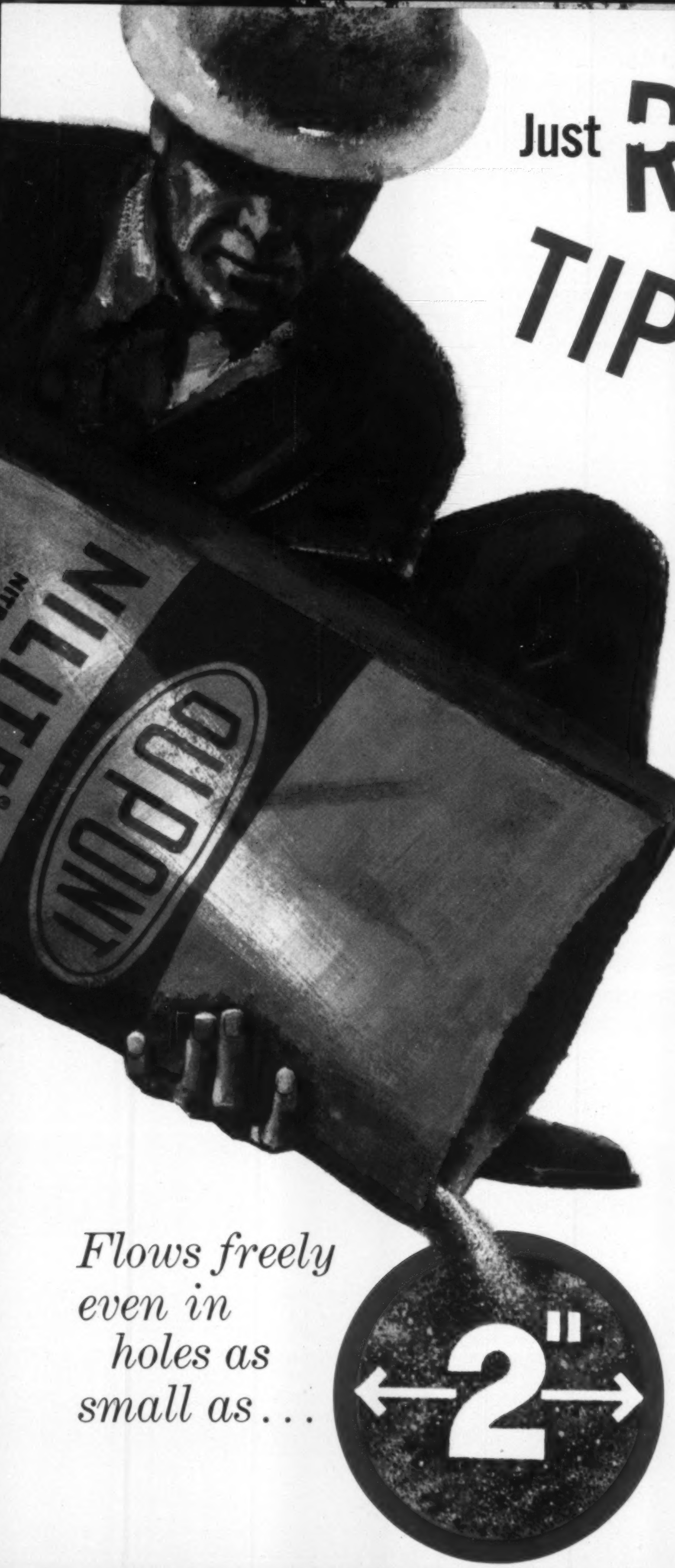

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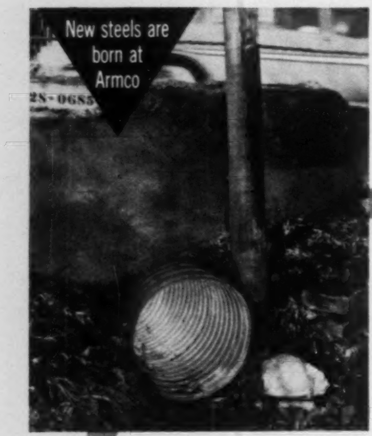
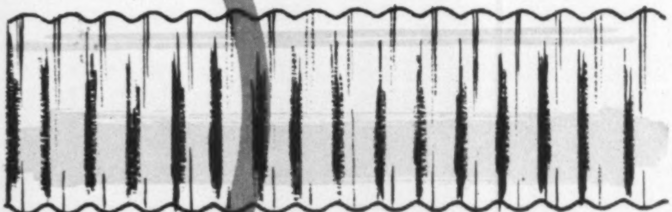


Armco Pipe, installed in 1909.



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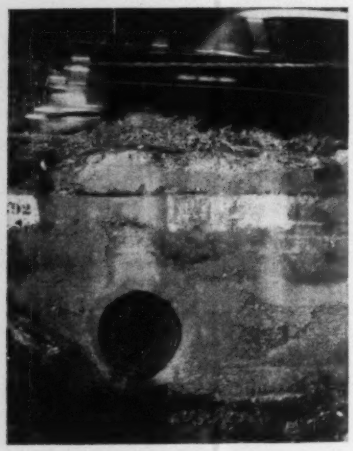

Armco Pipe, installed in 1911.

Installed 50 and 52 years ago respectively, these Armco Corrugated Metal Pipe culverts are still in good shape although the old road has been abandoned in favor of a new, wider and safer highway.

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If desired, these drainage structures in Butler County, Ohio, can be excavated and reinstalled elsewhere with assurance of many more years of service.

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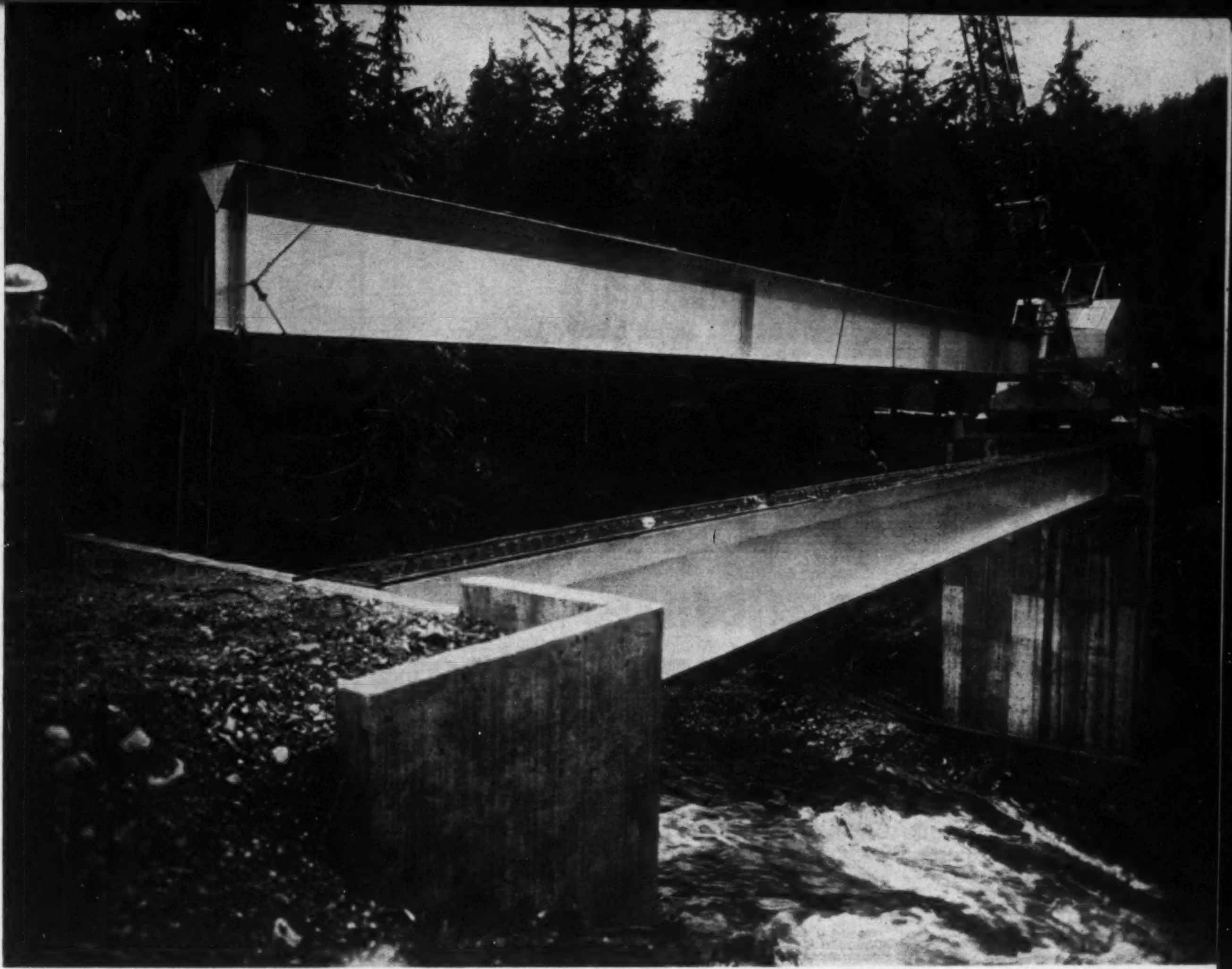


Delta Girders for a Short Steel Span

By Homer M. Hadley

Designers incorporated two unique "delta girders" in a single-lane logging bridge over Taylor Creek near Seattle, Wash. Each of the steel girders is 75 ft long and is designed to carry an occasional 70-ton log loader on a 74-ft span.

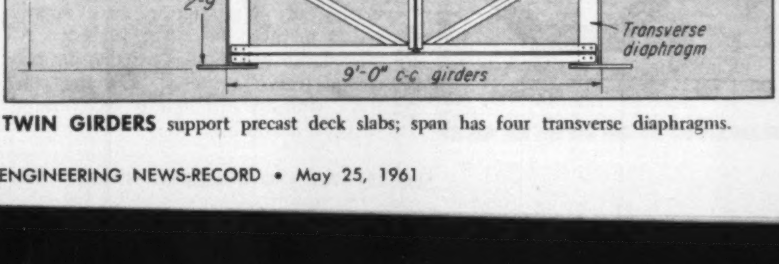
The girders look clean and attractive because there are a minimum number of stiffeners for bracing and stiffening the web and compression flange. There are but six visible stiffeners in each girder—four on the inside at cross-frames and two on the outside at bearings.

Instead of stiffeners, each girder employs a pair of corner plates that span the reentrant corners between web and compression flange to create a double-celled triangular box or shaft, continuous from one end to the other (see drawing). The ends are closed off and sealed with triangular plates.

This elementary, self-bracing triangular box practically fixes the upper compressive portion of the web, holding it rigidly against lateral or torsional displacement. At the same time, it provides three continuous supports for the top flange plates, which then can have a width and lateral stiffness proportionate to span requirements; e.g., say 4 ft on a 200-ft span.

The corner plates not only stiffen the web and top flange but act effectively in resisting longitudinal bending, since their metal constitutes a substantial portion of the transverse section.

The Taylor Creek bridge, owned by the Water Department of the City of Seattle, comprises the 74-ft span over the creek plus one 46-ft prestressed concrete girder span. Both spans have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Precast concrete slab
Cast-in-place concrete curb
3/4" bolts
Holes in slab 5" ϕ top; 3" ϕ bottom
4" ϕ drain hole every other unit
3"
1'-9"
6"
Delta girder
3'-11 1/4" at midspan
2'-9"
5 1/2"
4"
Hold-down bolt
Transverse diaphragm
9'-0" c-c girders

TWIN GIRDERS support precast deck slabs; span has four transverse diaphragms.

Homer M. Hadley, *veteran Seattle structural consultant, is noted for his outspoken views and his willingness to advance new concepts in bridge design.*

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precast concrete slab decks and both are designed for composite action between girders and slabs. Each precast deck panel is 6 in. thick, 15 ft 4 in. wide and 7 ft long, axially of the bridge.

To ensure composite action, the upper surfaces of the girders were shop roughened, as were the overlying surfaces on the bottom of the precast slabs. Each prestressed girder was roughened by scoring the top surface transversely. Numerous weld beads, hold-down nuts and spacer blocks were used on the steel girders.

In both cases, the concrete deck slabs rest on spacer blocks that hold them the desired distance above the tops of the girders. Spaced hold-down nuts were fastened to the girder tops. Thick marginal felt strips mounted longitudinally on the girders compressed under the deck slabs and prevented lateral escape of mortar.

Holes in the concrete deck slabs coincided with the locations of the hold-down nuts. Workmen placed the slabs and installed hold-down bolts and washers. A 1.5 to 1 coarse sand-cement mortar was forced through the holes in the slab to fill all the void spaces beneath. Five-inch transverse spaces between adjacent slabs were filled with concrete.

Final steps included casting heavy curbs in place, placing an asphaltic wearing surface and installing metal side railings.

Tests demonstrating the ability of weld beads to provide composite action between steel and precast concrete have been reported previously (ENR May 26, 1960, p. 45). Recent exploratory tests on the delta section at the University of Washington were highly satisfactory but have not yet been reported; no weaknesses peculiar to this design were discovered. On the contrary, stiffness and rigidity were found to be outstanding.

New Joy TDM-B1 swing boom trac-drill has complete power positioning and automatic hose reel

The new Joy TDM-B1 Trac-Drill with swing boom features full range power positioning of the drill. In swinging to any drilling angle from vertical to horizontal, there are no manual adjustments. The exclusive new hose reel trains air hose in all drilling positions, eliminating fouling—saving frayed hose and tempers.

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The Joy TDM carrier is the most versatile machine in its class, and now offers you the option of either the new Swing Boom model, or the universal U-Bar machine. For complete information on the Joy TDM Trac-Drill, see your Joy distributor or write for Bulletin 2671-24.

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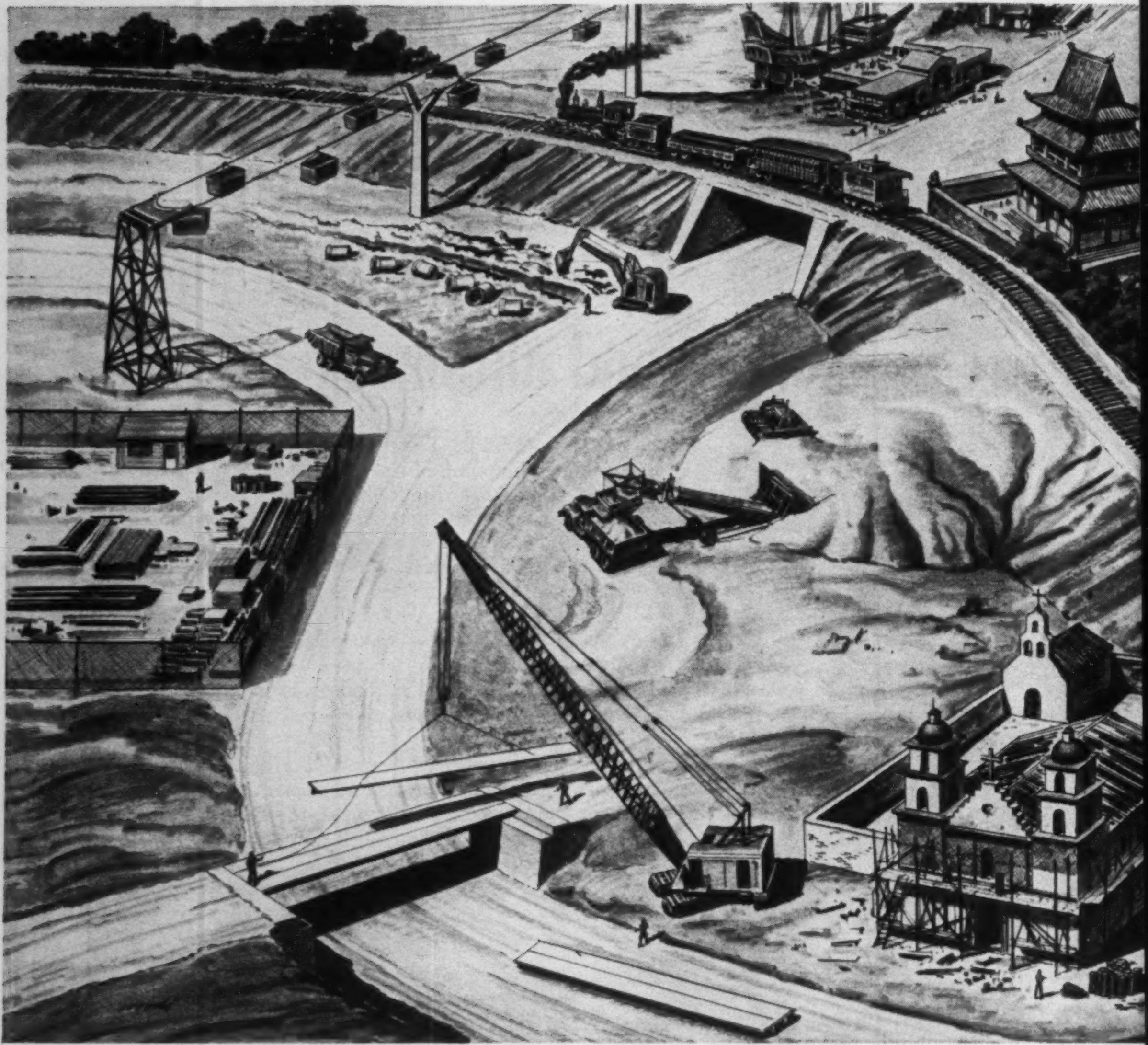


Past and future come to life... through construction skill and

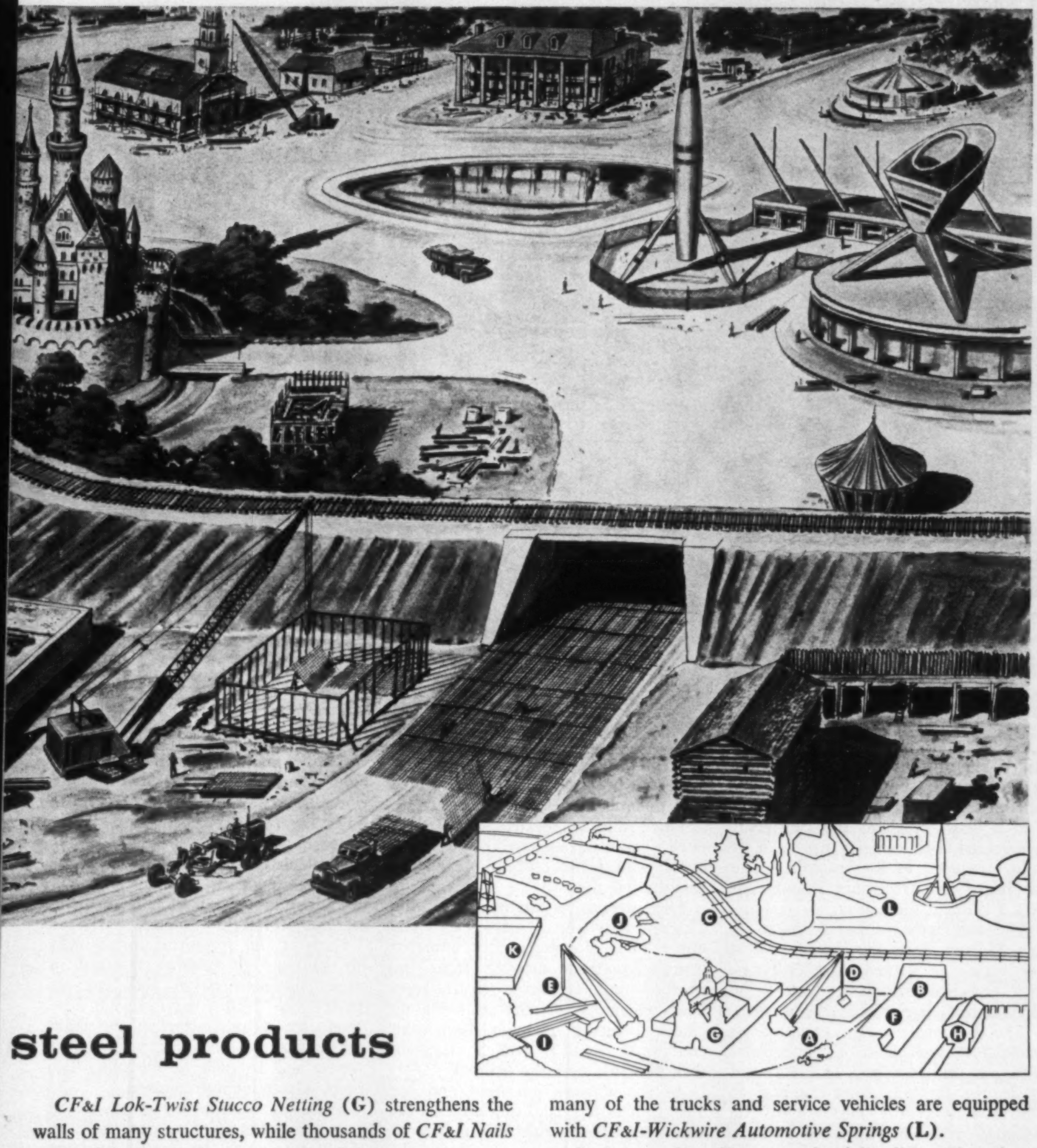
It takes more than a magic wand to build modern amusement centers. A far cry from the kiddy park of yesterday, the new educational park calls for vision, logical planning, coordination, construction skill and ton after ton of construction materials — including many different steel products.

CF&I — a nationwide steel company — supplies a number of dependable steel products for construction of amusement parks like the one shown above.

CF&I Grader Blades and Cutting Edges **(A)** level and smooth the craggy ground, converting an almost inaccessible wasteland into a workable area. *CF&I-Clinton Welded Wire Fabric* **(B)** adds extra strength to concrete roads, culvert pipes, buildings and parking surfaces, making the concrete more durable and crack-resistant.

The model train, like so many of today's fast-moving railroad cars, rides on *CF&I Rails* **(C)**. Cable cars glide through the air on *CF&I-Wickwire Rope* **(D)**, which is also widely used on cranes, trench hoes and carry-alls. Wickwire Ropes are selected because they last and have extra-high breaking strength.

The motto of contractors building such huge projects should always be: safety first. Consequently, they specify *CF&I-Wickwire Wire Rope Slings and Sling Attachments* **(E)** for hoisting jobs. And they insist on *Cal-Tie Wire* **(F)** for fastening road fabric, because this quality CF&I wire is available in handy reels which eliminate the hazards of tying with shoulder coils.



steel products

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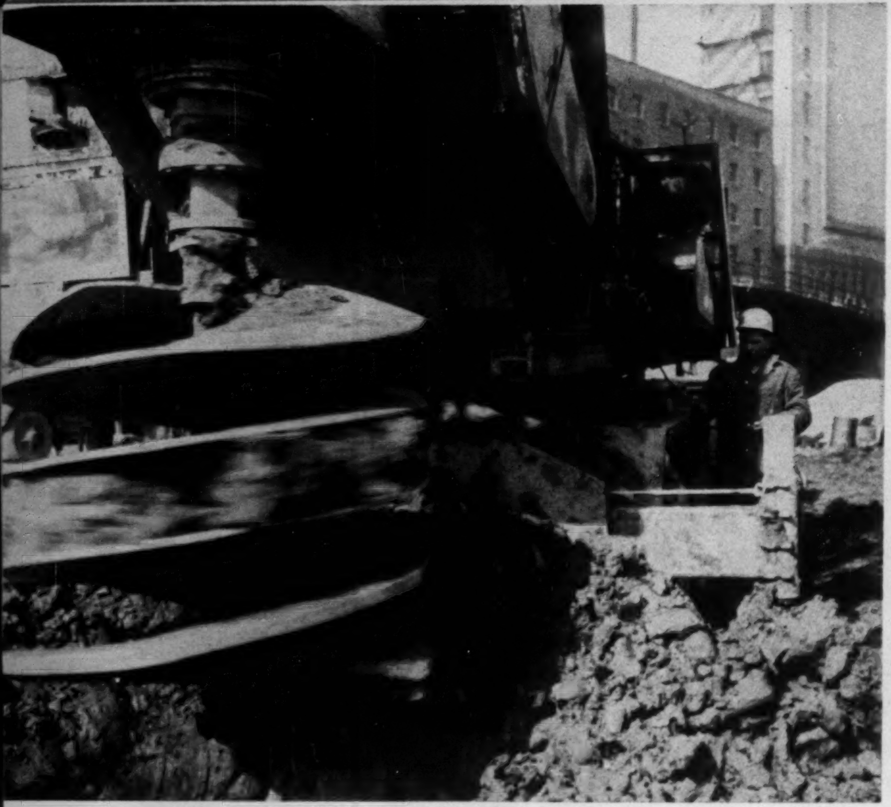


Spinning auger spews excavated material at top of caisson shaft.

Truck-mounted drill churns into

Big Augers Go Deep So Buildings

Giant augers and special rigs have drilled big caissons 115 ft to bedrock in Chicago to support twin 60-story apartment buildings.

In a crash program, the contractor constructed 148 caissons up to 5 ft 6 in. diameter, in four months. The job began last December 9 and continued through the winter.

The contractor worked 68 men on two 12-hour shifts per day, five days per week. He worked three drill rigs, each powerful enough to handle the job's largest auger flights (78-in. dia.).

The two smallest rigs, mounted on four-axle chassis with 12 pneumatic tires, can drill to depths of 110 ft and 90 ft, the third machine can drill to 150 ft. It is a 51-B Caisson Drill Rig designed and built by Case Foundation Co., Roselle, Ill., the contractor on this job.

The 51-B used for the first time on this project, is mounted on a Bucyrus-Erie 51-B undercarriage with swamp tracks. It is powered by a 370-hp Caterpillar D-375 torque convertor diesel engine turning a 26-in rotary (Gumbo Buster) drill table, complete with forward-reverse gear. Uuder normal conditions it operates the auger between 750 and 800 rpm.

The 120-ton machine cost more than $325,000, according to Grover C. Gauntt, vice president of Case.

All 148 caissons were carried to bedrock 108 ft to 115 ft below ground level, with rock penetrations up to 4 ft into hard dolomite limestone.

Three different water strata, saturated granular materials and large boulders near the bottom of caissons complicated the work.

The site is separated from the Chicago River by a quay wall. The upper 20 ft of material is a saturated granular material dredged from the riverbed, with customary obstructions. The remainder of the material includes hardpan, granular formations containing boulders and a strata of rock flour silt near the bedrock.

As the caissons advanced and the augers removed the overburden, the water trapped on top of the bedrock rose nearly 60 ft up the shaft. To prevent this saturated silt from flowing into the shafts, the lower 60 ft of each caisson was formed inside of steel barrels up to ½ in. thick, and cored into the bedrock.

These core-barrels were fabricated with a ¾-in. cutting edge of high alloy steel and structural steel rings to withstand hydrostatic pressure upon dewatering. The drill rig rotated them under tremendous torque power and a downward crowd of several tons.

Coring continued to a sufficient penetration into the bedrock to shut off the artesian water. The shafts then could be de-watered without loss of ground and kept substantially dry while workmen removed and inspected the limestone, tested the bedrock and concreted in the dry.

Thirteen of the caissons had to be drilled through an abandoned system of freight tunnels about 8 ft in diameter and 50 ft below ground.

Each of the apartment towers rests on 40 concrete caissons arranged in three concentric circles with radii of 16 ft 9 in., 23 ft 6 in., and 54 ft 8 in. There are eight caissons in the inner ring supporting the core wall of the tower, and 16 each in the other two rings, which support columns.

Since the bottom 60 ft of all 80 tower caissons are encased in steel shells, they could be smaller in diameter than the remaining upper portion. Caissons in the inner ring are 66 in. dia for the upper portion and 54 in. dia for the bottom 60 ft of shaft. The middle ring has shaft diameter of 48 in. top and 42 in. bottom, while the outer ring caissons have a 60-in.-dia shaft at the top and 52 in. at the bottom. A change in design of the west tower to accommodate a TV antenna framework on the roof, meant widening the interior ring of caissons from 66/54 in. to 72/66 in.

The other 68 caissons are constant

bedrock of riverfront site.

Can Go High

diameter. Four are 36 in. dia, nine are 30-in., and the remainder are 24-in. They were keyed 6 in. into the limestone.

In the best day's work, four of the 66-in. top dia caissons were drilled about 110 ft to rock and concreted in two 12-hour shifts.

To drill one of the 66-in. (top dia), 54-in. (bottom dia) tower caissons, the crew moved its rig over a surveyor's stake marking the center point of the caisson. Using a hand level, they plumbed the rig tower and "kelly pole." The auger, attached to the bottom of the kelly pole, was centered over the stake.

They drilled the first 20 to 30 ft of caisson oversize (78-in. dia) and installed a top casing of scrap metal to retain the loose granular material between ground surface and stiff clay.

After the engineers established marks on the 78-in. casing, the drillers changed to a 66-in. auger. They centered it and drilled to within about 60 ft of bedrock. This length of caisson shaft was not cased.

A 60-in. auger replaced the 66-in. auger and the caisson was drilled to bedrock or as near to bedrock as the overlying boulders permitted. Workmen then removed the 60-in auger, lowered a 60-ft length of 54-in.-dia core barrel into the hole, and cored it into the bedrock.

Biggest rig on job can turn a 66-in. auger at 150-ft depth.

The core barrel remained in place. After it was dewatered, workmen with jackhammers and a muck bucket removed the rock inside the caisson. Engineers then inspected the bottom of the caisson. In some tower caissons a core 2-in. wide and 8-ft deep core was taken to insure a minimum thickness of sound solid material.

Workmen packed the area between the 54-in. core barrel and the 60-in. drilled hole solid with wood wedges. Steel rods driven through precut holes in the top of the barrel held the wedges in place and also centered the core barrel.

Using transit mix concrete, workmen filled the 54-in. core-barrel and the 66-in. drilled hole above it. After the caisson had been concreted up the bottom of the 78-in. casing a 66-in. thin steel shell liner was lowered into the hole, centered and held in correct position by wedges between it and the 78-in. casing.

Finally, the 78-in. casing was extracted after the completed caisson had cured a minimum of 24 hours. This method is the patented "Case Method."

The upper sections of caissons are reinforced with high strength vertical dowels, assembled into cages on the site and set in place. In some cases, this vertical reinforcement extends to the bottom of caisson.

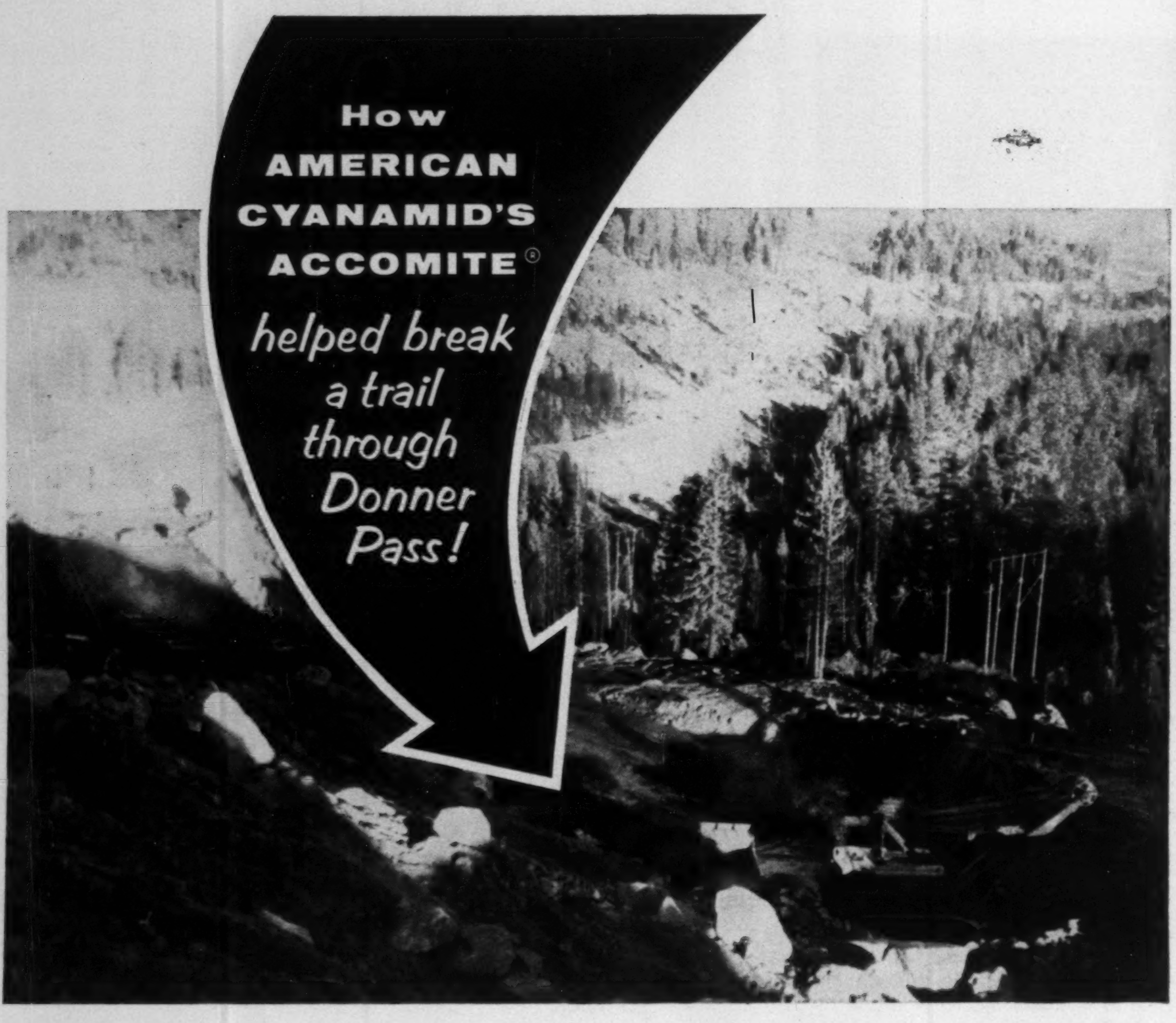
Transfer of stresses from the reinforced concrete building columns into the caissons is provided by welding the vertical reinforcement to a heavy base plate. This 2-in.-thick plate is welded to the tops of the caisson dowel bars and to the bottoms of the high strength column reinforcement—using full-penetration butt welds.

Material excavated from the caissons was moved to the riverside by a 3-cu-yd tractor shovel. It was loaded by crawler crane and 1.5-cu yd bucket onto a barge —about 600 cu yd per load—and towed down the Chicago River to provide fill material for an industrial plant expansion.

About three barge loads were moved per week. They were loaded out at night, to free the crane for other operations during the day.

Bertrand Goldberg and Associates are architects in charge of design and construction.

The $36-million project (ENR Mar. 10, 1960, p. 23) is sponsored by the Building Service Employees International Union of the AFL-CIO.



American Cyanamid explosives are currently lending a hand as the joint construction venture of Briggs, Conley and Dennis drive a hard rock, divided freeway across the Sierras at famed Donner Summit. One of the last links in Interstate 80, connecting Sacramento and Reno, the 7 mi. job involves over 3,500,000 cu. yds. of rock excavation (chiefly live granite), in a steep, densely wooded area.

Initial shooting used ammonium nitrate detonated with a single stick of 40% gel and stemmed with 7 ft. of drilling dust. Fragmentation was poor with lots of unmanageable rock, so contractor considered shifting to blasting gel entirely. With 2,500,000 lbs. of explosives estimated, this would have added a quarter million dollars to the job cost. Cyanamid's nitro-carbo-nitrate mixture, ACCOMITE was suggested. Test results on this economical, relatively insensitive blasting agent were highly satisfactory and it has since been used exclusively. Breakage is perfect, equipment* is kept busy and job is progressing in record time. Average shot is a 14,000 to 18,000 cu. yd. block, drilled with 22', 3" diameter holes on a 6x6 6x7 or 7x7 pattern.

Cyanamid offers a complete line of dependable high quality explosives, promptly delivered with distributor service coast to coast, plus cost-cutting assistance in their best use. For complete information, contact our nearest office.

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*Equipment includes: 3 Bucyrus-Erie 88 B and 3 Northwest 80 d shovels, 16 Euclid end-dumps and 10 D8 ½ Caterpillar dozers.

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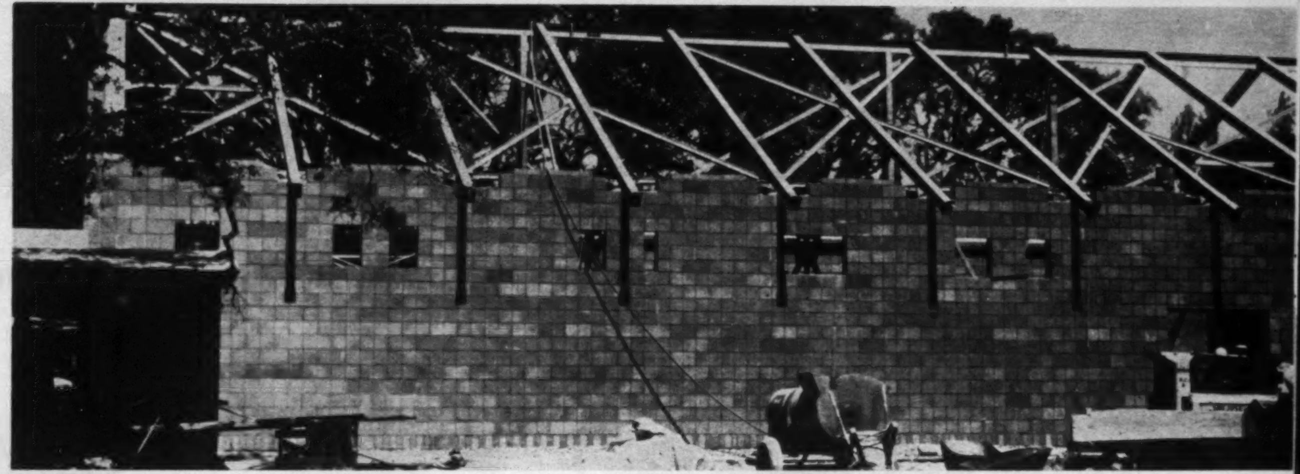


A gabled space truss frames the 83x44 ft area with steel weight less than 6 psf.

Folded-Plate Space Truss Spans Gym

A steel space truss satisfies some testy architectural requirements in the all-purpose room of the Laurel School in Menlo Park, Calif.

Architect Kingford Jones of Menlo Park wanted a low building, columnfree interior 44x83 ft, and a longitudinal wall free of pilasters. And the roof structure had to be designed within a tight budget.

Trusses or tied arches would have required lower chords or tie rods, which would have interfered with basketball. Rigid frames would have had columns projecting either into the room (thus presenting a hazard to the children at play) or out from the long exterior wall (thus destroying the architect's design for a plane-surfaced wall).

Moreover, the lateral bracing system, which forms an integral part of the space frame, would have required additional members in a rigid frame system.

The space frame satisfies both the architectural requirements and the demand for economy. Steel weight is less than 6 psf.

• Designed like a folded plate—Structural engineer Marvin A. Larson of San Francisco designed the space frame for the structural action of a folded plate. Each truss forms the plane of one-half of the gable roof.

Purlins span from 8-in. reinforced masonry bearing walls to the center ridge beam, which acts as a common compression chord for both trusses. Purlin reactions on the ridge beam load each truss with one-quarter of the total roof load. Masonry piers centered at the end walls resist the truss reactions.

To reduce the bending moment in the purlins, the engineer designed the truss members to connect to the bottom flanges of the purlins. Since the purlins act as compression verticals in the truss, the eccentric connections produce an upward bending moment, thereby partially offsetting the downward bending moment.

Wind and earthquake forces required no increase in member sizes designed for vertical loading because of the allowable one-third increase in allowable stresses for combined loading. Wind load was 15 psf; roof live load, 16 psf for purlins and 12 psf for the roof as a whole. Seismic design force was 13% of the structure's dead load.

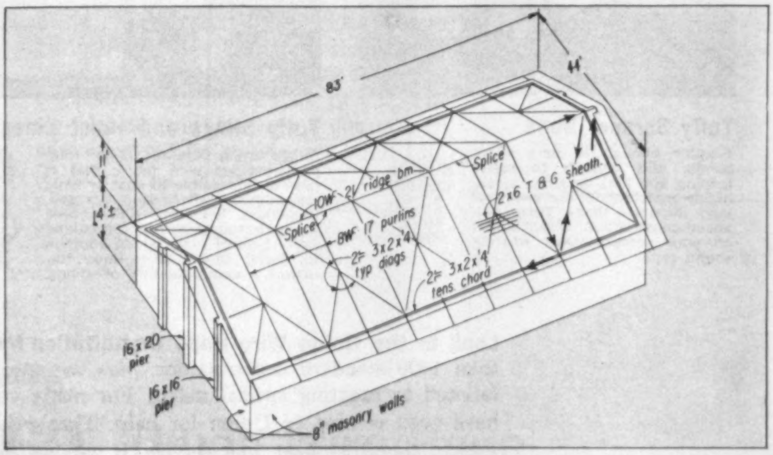
• Built with camber—To compensate for dead load deflection, the erector had to jack camber into the ridge beam after the entire frame had been assembled. This enabled steel workers to bolt the unconnected ends of tension diagonals, which were detailed short.

Steel erection started with the ridge beam, which required the only temporary shoring on the job. Timber shores supported the ridge beam near the third-point splices. The purlins were then bolted to the ridge beam and seated on steel-angle bearing plates anchor-bolted to the masonry walls. The tension chords then went into place just inside the walls.

The contractor grouted the pockets left for the purlin bearing seats, thus forming a connection designed to transmit lateral forces from the wall into the roof truss. The bearing walls are reinforced with grouted reinforcing bars (#4 bars in the horizontal joints and #5 verticals in the masonry cores). They are spaced at 32 in. c-c.

After the framing had been erected, the workmen jacked a ¾-in. maximum camber into the ridge beam. This pulled in the exterior walls and allowed the steel workers to bolt the unconnected ends of the web angles.

General contractor is Harrod & Williams of Sunnyvale, Calif.; San Jose Steel Co. of San Jose fabricated and erected the structural steel.



MAIN STRESS PATHS of space truss under vertical loads follow arrows. End walls act as diaphragms to resist lateral loads.

Union Wire Rope

Tough-job "champs"--Union Wire Ropes and Slings

"Real Gone" from Beatings on the Drum

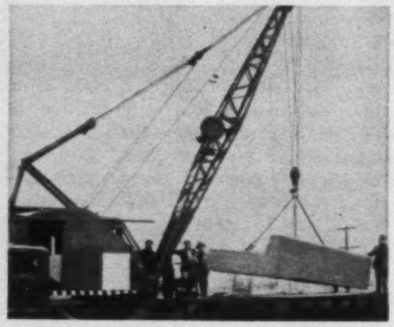
Even under normal operating conditions, drum wear gives wire rope severe punishment. This wear concentrates at the cross-over points and at the flange. Excessive drum crushing results from operating on small drums, excessive loading and poor winding. Smooth drums are not recommended. Here are typical "drum beatings"; cross-over wear; cross-over crushing on drum; drum crushing from poor winding; drum-crushing from small drum.

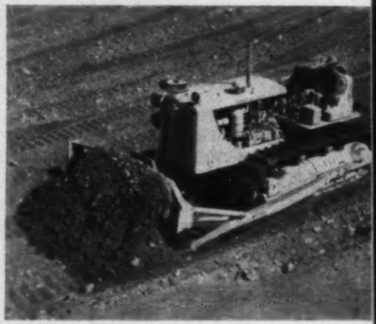
Although drum wear cannot be eliminated, its effects can be greatly reduced. Under properly engineered procedures, two and three times the service can be obtained from the same line by improving drum conditions. Union Wire Rope Engineers will help you with this problem.

On the "Blink" from a Kink

This open kink resulted from mishandling of rope. Guard against kinks by proper winding on the drum. Never pull a loop smaller. Always enlarge it, then straighten out the rope.

Each Union Tuffy is Engineered to Meet a Different Tough Job





Tuffy Scraper Rope

Flexible enough to take sharp bends; stiff enough to resist looping and kinking when slack; highly resistant to the shock of load impact—that's Tuffy balanced construction. Mount a reel on your scraper—save wasting sound rope.

Tuffy Slings and Hoist Lines

Slings are a patented, 9-part machine-braided wire fabric that is next to impossible to knot or kink. Hoist lines have built-in strength, toughness, flexibility. Balanced—a top-performing team for handling every type of material. In addition to Tuffy, Union Wire Rope furnishes a complete line of slings.

Tuffy Dozer Rope

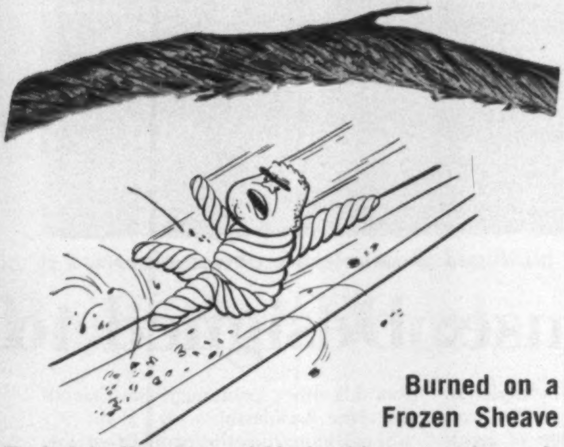
Mounts right on your dozer in a 150′ reel. When rope shows wear, just feed through enough to replace the damaged part. Saves rope, gives you a bonus of extra service. Also available in 300′ and 500′ reels.

Look to the Union Wire Rope Organization for "Right Rope" Service. Union has more than 1600 standard constructions, *plus* the special Tuffy family of wire ropes and slings tailored to exacting special needs. For many years people with special wire rope needs have been coming to Union for help. That's the way the Tuffy family grows. Our research laboratory is at your service. If we don't already have it, we'll design and fabricate just the rope or sling you need. And you'll be sure of Union strength, Union flexibility, Union job-tested quality. Call your Union distributor—see the phone book Yellow Pages.

Tuffy® Tips

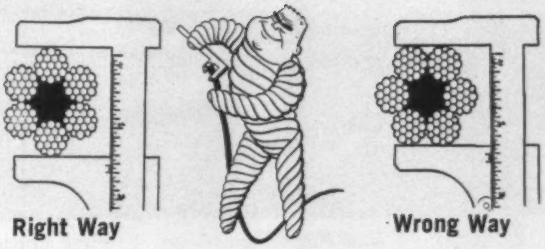
New steels are born at Armco

keep the title longer with proper handling.



Burned on a Frozen Sheave

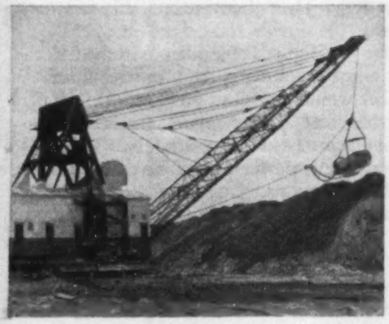
End of the line came quickly for this rope as the result of operating over a sheave that did not turn. Note the exceptionally heavy abrasion on one side of the rope. Sheaves should be checked thoroughly and often.



How to Measure Rope Diameter

To get the most service, efficiency and safety out of wire rope operation, rope and sheaves must be precisely fitted to each other. There's only one right way to measure rope diameter: use machinist's calipers and be sure to measure the *widest diameter*.

A slight shift of the rope in the calipers, as shown above, will give you a misreading which would result in ordering an undersize rope. Note that the measurement at right shows 1/8" under correct diameter. Be sure to double-check every time!



Tuffy Dragline Rope

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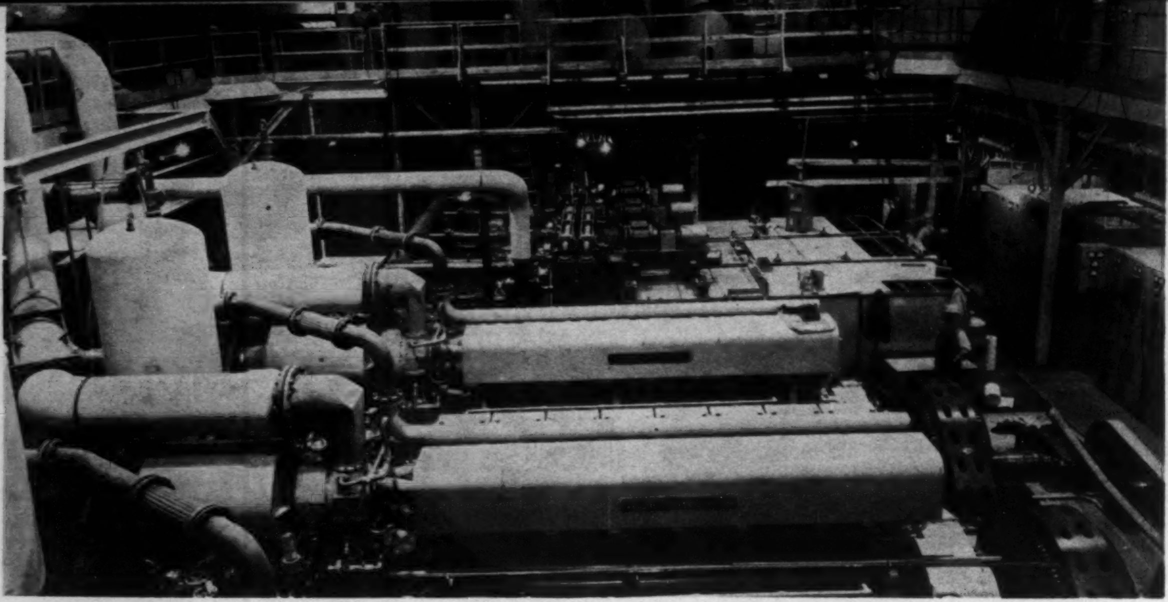
Union Wire Rope Handbook of TUFFY TIPS . . . Free!

The "Tuffy Tips" shown here are quoted right out of Union's handbook. In it there are dozens of other priceless hints on the correct use of wire rope. The common abuses and how to avoid them. How to save costly injuries. Maintenance tips. The proper fittings and how to apply them. Recommended sizes. Many other facts and suggestions that will cut down your rope costs and help you get out of wire rope the full service we build into it. No charge. Write Union Wire Rope, Armco Steel Corporation, 2228 Manchester Ave., Kansas City 26, Missouri.

Handbook of Tuffy Tips on Abuses and Correct Uses of Wire Rope and Slings

2-61

ARMCO Union Wire Rope



First completely hardened diesel-electric power plant . . .

Titan's Powerhouse: Designed to

A powerhouse that will keep going through all but a direct hit from a nuclear weapon is now serving a battery of three Titan missile cells at Lowry Air Force Base near Denver. It's the first completely hardened underground powerhouse in the U. S.

This self-contained plant—four 1,000-kw diesel-powered generators—is designed to operate through high overpressures caused by either attack or missile malfunction. Its ventilation system can filter out radioactive particles; its cooling system stores energy in ice banks to draw on during the launch period.

Blast and shock resistance is divided into three separate parts or zones: an 18-in.-thick concrete dome, a 1,000-ton inertia block supporting the generating equiment, and shock mounting engine for appurtenances and auxiliaries. All zones are completely separated structurally.

A basic concept in design of hardened facilities is structural separation of the shell of the underground building from its contents. In this case, the dome is designed to settle slightly under blast pressure.

Once its narrow (8-ft) footings settle even slightly, the superimposed soil arches. That reduces the load on the dome so that only a radial load is transmitted to the shell. Thus, the shell does not have to be designed for flexure.

Since the designers, Daniel, Mann, Johnson & Mendenhall and Associates, expected the dome to settle independently of its contents, the only equipment they've attached to it is a 10-ton-capacity radial crane. A rattle space of at least 1 ft separates the dome from all other equipment so that it can settle harmlessly.

Shock-mounting the contents of the power plant raised difficult design problems—problems the designers had to attack without precedents to guide them. For example, what intensity of overpressure should they design to? Would it be cheaper to shock-mount the whole floor system or to shock-mount each piece of equipment individually? They had no reliable estimates.

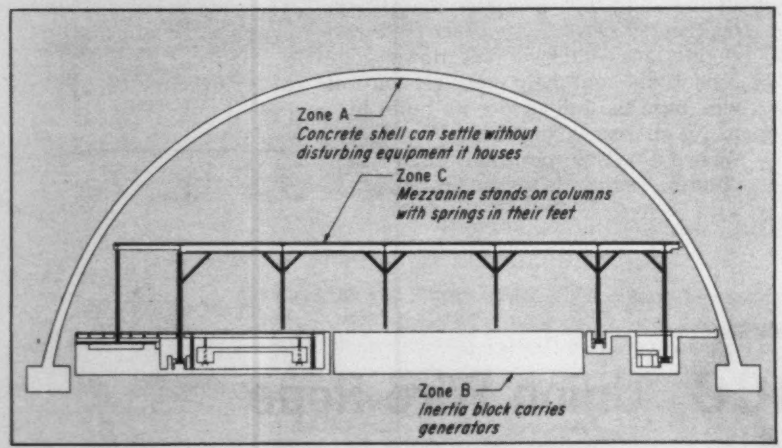
The designers' studies indicated that shock-mounting the entire floor system would be more economical, but on this first power plant the equipment was treated separately. Later underground power plants have slightly different designs.

At Lowry, the engine-generator sets are not shock mounted. Instead, the four units are mounted on a single 1,000-ton inertia block of solid concrete; the engines themselves are rugged enough to withstand shock.

The engine appurtenances and auxiliaries are shock mounted in two ways: Those on the main floor of the powerhouse are placed on a concrete slab supported by heavy steel coil springs; but equipment on the 16-ft-high mezzanine is handled differently, although designed for the same amount of shock resistance.

Mezzanine columns penetrate the floor and rest on steel beams in concrete boxes. These beams act as huge shock-absorbing springs. Frequency of the "spring" is carefully calculated to avoid possible resonance with the structure and equipment supported.

One of these springs is a pair of


Zone A
Concrete shell can settle without disturbing equipment it houses
Zone C
Mezzanine stands on columns with springs in their feet
Zone B
Inertia block carries generators

GENERATORS are to resist movement, all else should move harmlessly.

is buried in missile complex at Lowry AFB.

Beat the Bomb

beams that span 16 ft. The beams are made of welded high strength steel—90,000 psi ultimate—with the webs 4x⅜ in. and the flange plates 9½x1 in. Static deflection from a 50,000-lb load is computed at 1 in. and frequency is calculated to be 3.13 cycles.

A diesel-powered generating plant must have a supply of fresh air. Fans provide 20,000 cfm for engine combustion and 115,000 cfm for ventilation. Engine exhaust escapes to the surface through blast valves; it is forced out with cooling air. New air is drawn into the powerhouse through similar blast valves.

Should a blast occur, sensing devices will close the blast valves, isolating the entire plant to make it a self-contained unit. When the shock wave passes, the blast valves reopen automatically. If the overpressure continues for more than a minute or two—a highly unlikely condition—the entire plant would shut down due to temperature rise in the powerhouse.

Other sensing devices keep radiation levels down to tolerable limits should surface air be contaminated. Some radioactivity is removed by passing the incoming air through filters similar to those used to catch flyash. Removing radioactive articles is the best way to keep air-borne radioactivity down.

One of the big uses of power in the generating plant is operation of the chilled water system for air conditioning and cooling the engine lube oil. To reduce the size of the power plant, ice banks have been installed. Thus, when the entire missile installation is operating at a peak effort, chilling effect comes from a combination of these ice banks and one of the water chillers. And when the entire installation is under normal load conditions, power is used to produce ice in the ice banks. There are three such banks; each holds 15 tons of ice.

Water supply for the installation comes from a pair of deep wells (one is a standby) drilled into the earth at the bottom of the power plant. Total normal usage is 125 gpm. The designers have provided a nominal amount of water storage, including a 10-day supply for survival in event of emergency.

Even the deep wells' pump and fittings have a shock mounting inasmuch as a blast might produce relative motion between the power plant floor and the ground below.

The 4-in. well discharge pipe is inserted in a 12-in. well casing. And the discharge pipe is supported by a 4 ft 10 in. dia steel base mounted on heavy steel springs.

The missile launching facilities were designed under direction of Brig. Gen. William E. Leonhard, Deputy Commander, Civil Engineering, for the Air Force Ballistic Missile Division in Los Angeles. Architect-engineer was a joint venture of DMJM, Rust Engineering Co., Leo A. Daly Co., Inc. and Mason & Hanger-Silas Mason Co., Inc. L. L. Snedden of Mason & Hanger supervised the design. Each firm supplied key design personnel.

Construction cost $70 million. It was handled by a joint venture of Morrison-Knudsen Co., Inc., Paul Hardeman, Inc., Johnson, Drake & Piper, Inc., Olson Construction Co.; and F. E. Young Construction Co.

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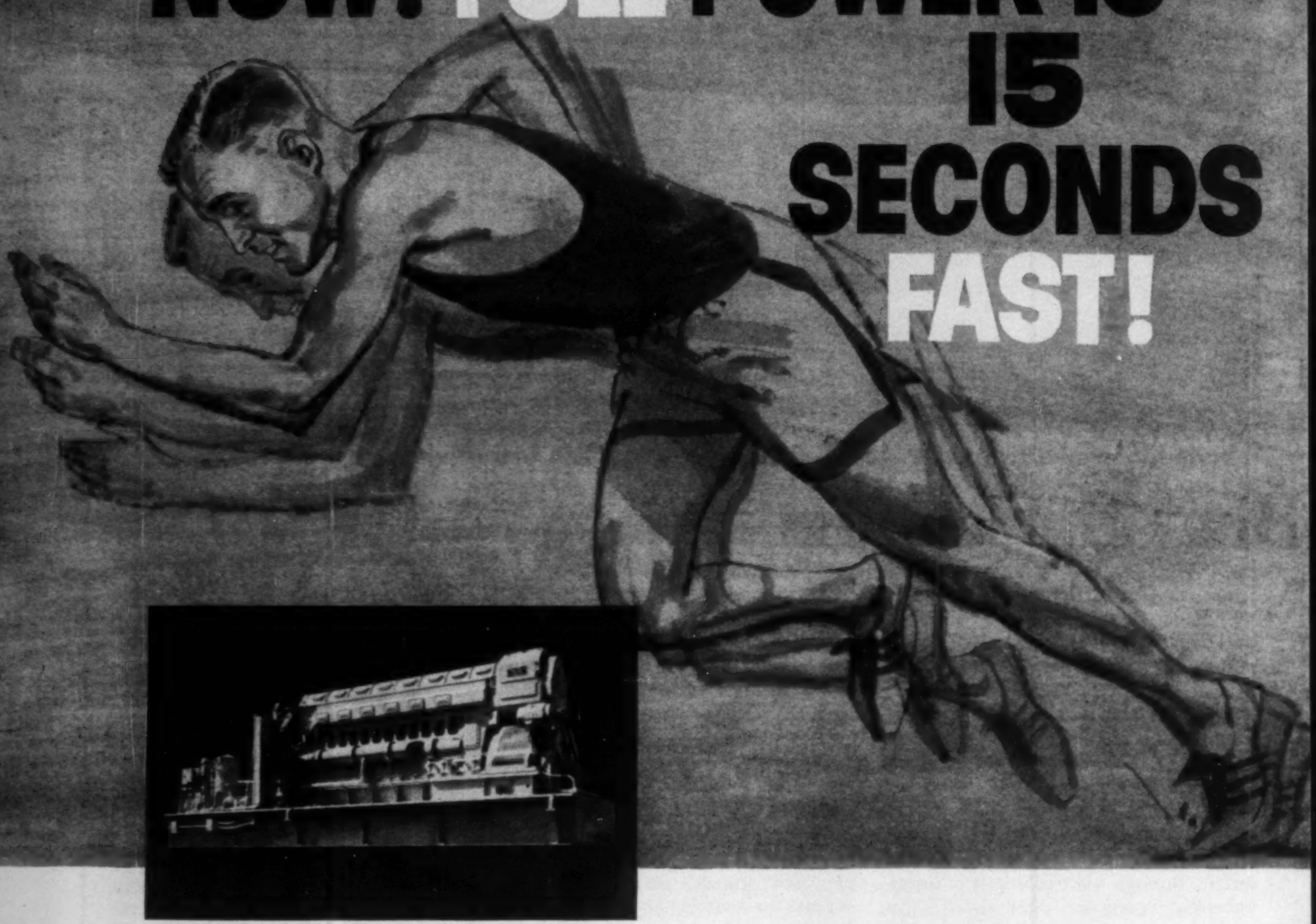

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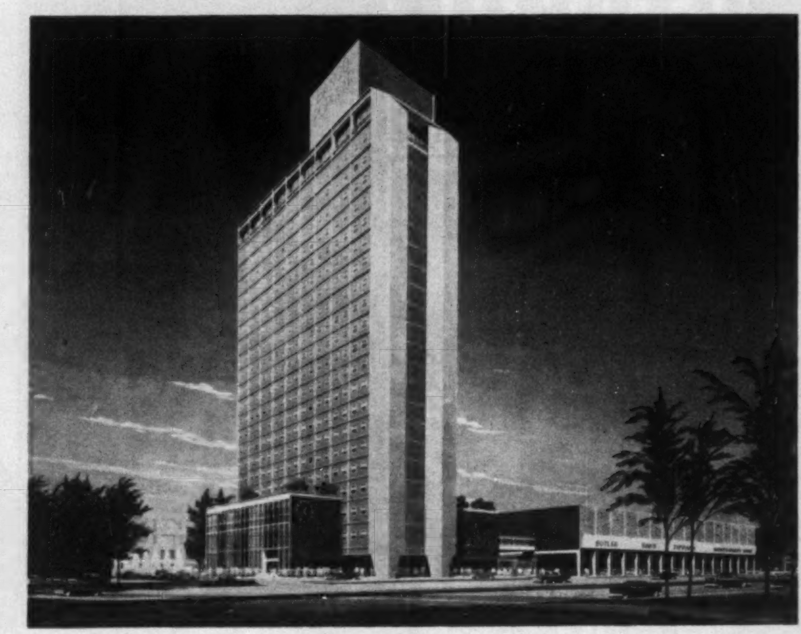


High Tower for San Juan Bank

A 25-story reinforced concrete bank planned for construction this summer in San Juan will be Puerto Rico's tallest building. Bids for the $6-million Banco Popular project will be taken in the "early summer" and construction will follow as soon as possible, the architect says.

The reinforced concrete frame of the office tower is designed to withstand heavy earthquake and wind forces. At the top of the building, design wind loading will be 50 psf. Pairs of shear walls to resist these lateral forces are located at each end of the building and extend down to a heavy foundation mat carried on piles.

Piles vary from 35 to 40 ft in length; the mat thickness varies between 5 and 6 ft. Because calculated forces for wind load and earthquake action are so large, a large portion of the piles will be battered to resist horizontal forces passed down through the shear walls and columns to the foundations.

In the lower floors of the superstructure, load transmission is a problem.

The engineers have specified A432 steel for reinforcing in columns and shear walls below the second floor since forces become so large there. This steel, with a 60,000 psi yield point, keeps column size down between grade and second floor and allows the architect to neck-down the end shear walls at the bottom of the building. Reinforcing bars go up to 18S in size—2¼ in. dia—in the necked-down portion of these shear walls to satisfy ACI code requirements. The shear walls are hexagonal in cross section. They taper from 15 ft length at grade to 27 ft length at the second floor level. They vary from 3½-ft thickness at mid-length to 2 ft thickness at the ends.

Exterior walls—reinforced concrete 8 in. thick—provide part of the tower's stiffness along the length of the building. Two window units 4x5 ft occur in each bay of the wall. Windows were kept small to cut air-conditioning load and to reduce glare in the offices as well as to add stiffness to the building.

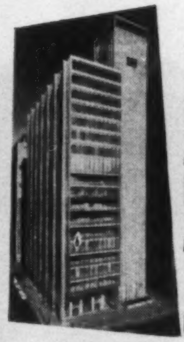
Concrete in the superstructure will be generally 3,000 psi, but small sections and columns will take 3,500 and 3,750-psi concrete. The shear walls will be 5,000-psi, cast-in-place concrete between grade and the second floor.

Banco Popular, the owner, will occupy wing sections at the base of the tower as well as two floors in the building.

In addition, the tower will contain 288,000 sq ft of rentable floor area.

A shopping center next to the tower will be built later as a separate project. The completed development will have parking space for 1,000 cars. There will also be a bank employees' auditorium seating 300 persons.

Chauncey W. Riley is the architect. Throop & Feiden is the structural engineer. Tizian Associates are the mechanical engineers. All are New York City firms.



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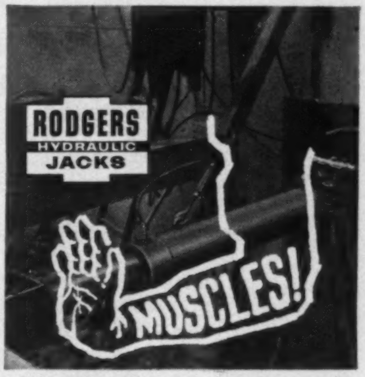

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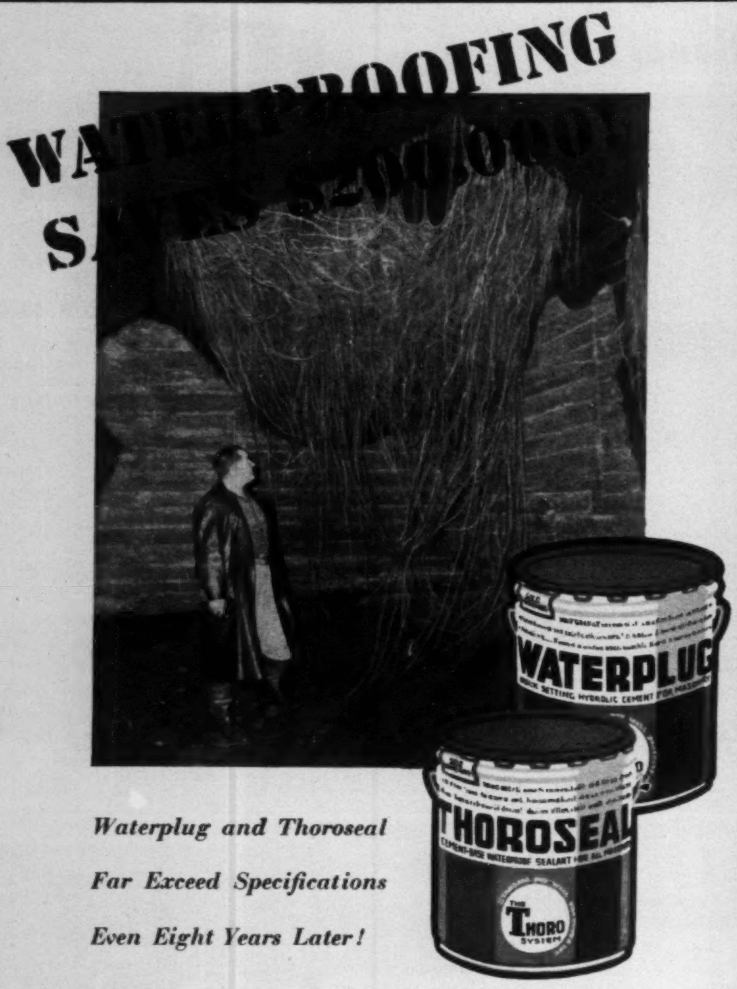
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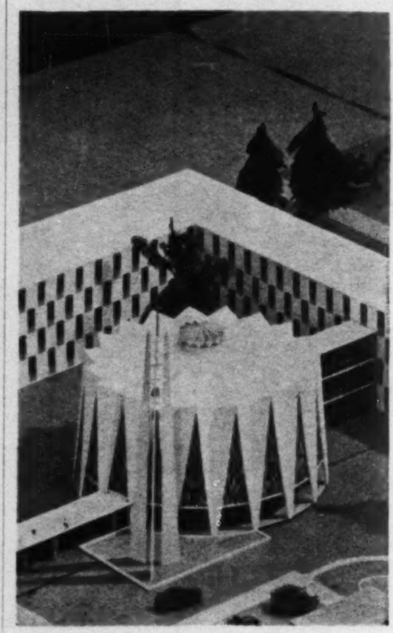


Radial Steel Bents Frame Round Roof for a Chapel

A circular chapel with a steel-framed scalloped roof and tapered precast-concrete wall panels is under construction in Chatham, Ontario. It is part of a $1.4-million project comprising the chapel and a convent for the Ursuline Sisters.

Inverted L sections, set around the perimeter of the chapel, will form the 65-ft-high steel columns and the girders of the 116-ft-dia roof. They will frame into a central lantern ring of steel and reinforced concrete. A four-legged falsework tower will support the steel framing during erection.

Spanning between the 20 radial roof girders, bent steel purlins will shape the scalloped roof surface. Wood decking, 3 in. thick, will cover the roof.

The welded steel frames will have tapered legs with ⅝-in. webs varying from 10-in. depth at column base and lantern ring to 30-in. depth at the knee. The flange plates will measure 12 x ¾ in.

Tapered precast-concrete wall panels will be anchored to the steel columns by reinforced concrete cast around the columns at the site.

Triangular glass panels between the precast wall panels will complete the wall enclosure.

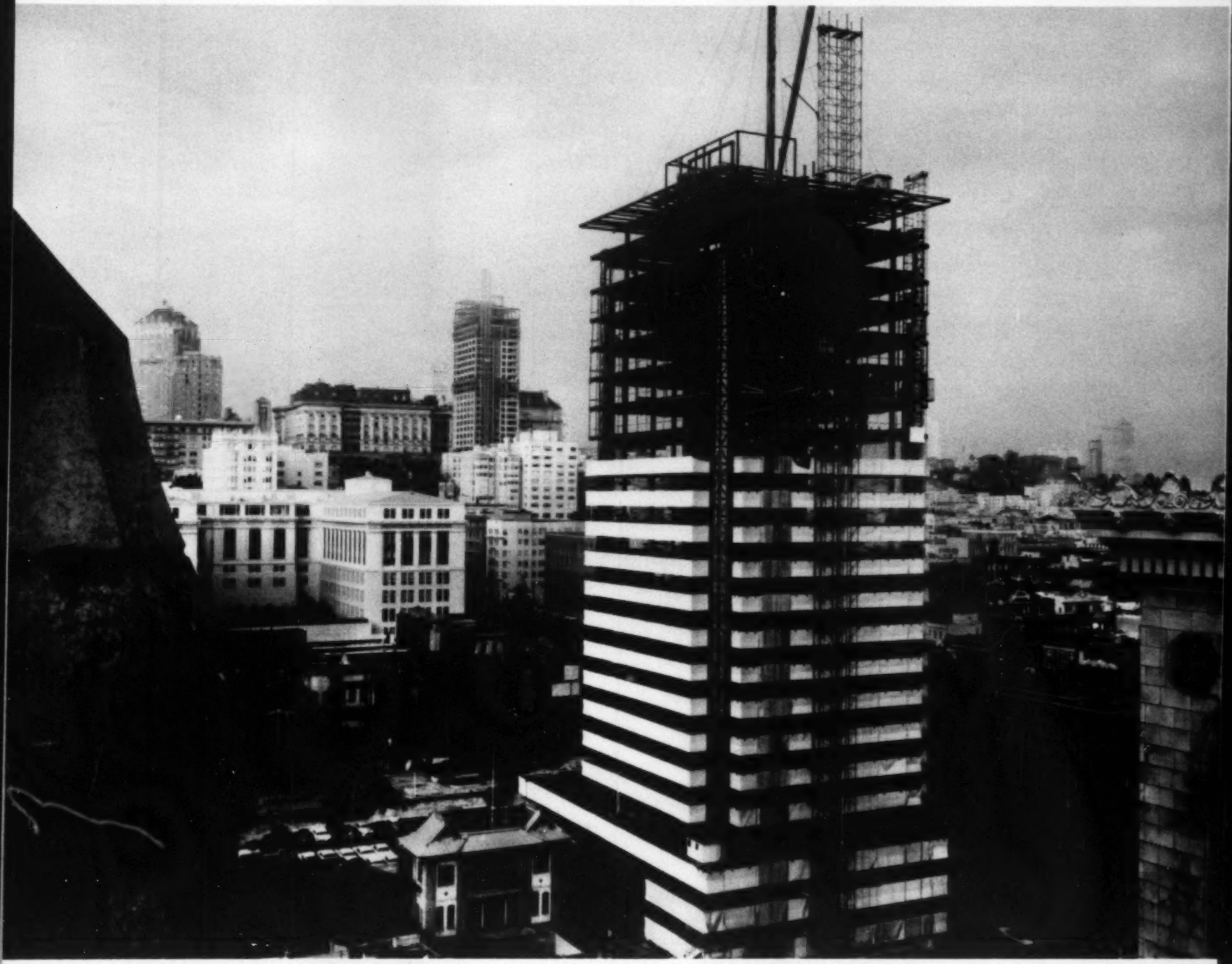
Structural engineer is Todgham & Case of Chatham, Ont., with Edgar A. Cross & Associates of Toronto as associates. Architect is J. W. Storey of Chatham. General contractor is Eastern Construction Co., Ltd., of Walkerville, Ont.

(Advertisement)

Progress Report on
STEEL CONSTRUCTION

JUNE, 1961

BETHLEHEM STEEL COMPANY



Two New 'Scrapers for the San Francisco Skyline

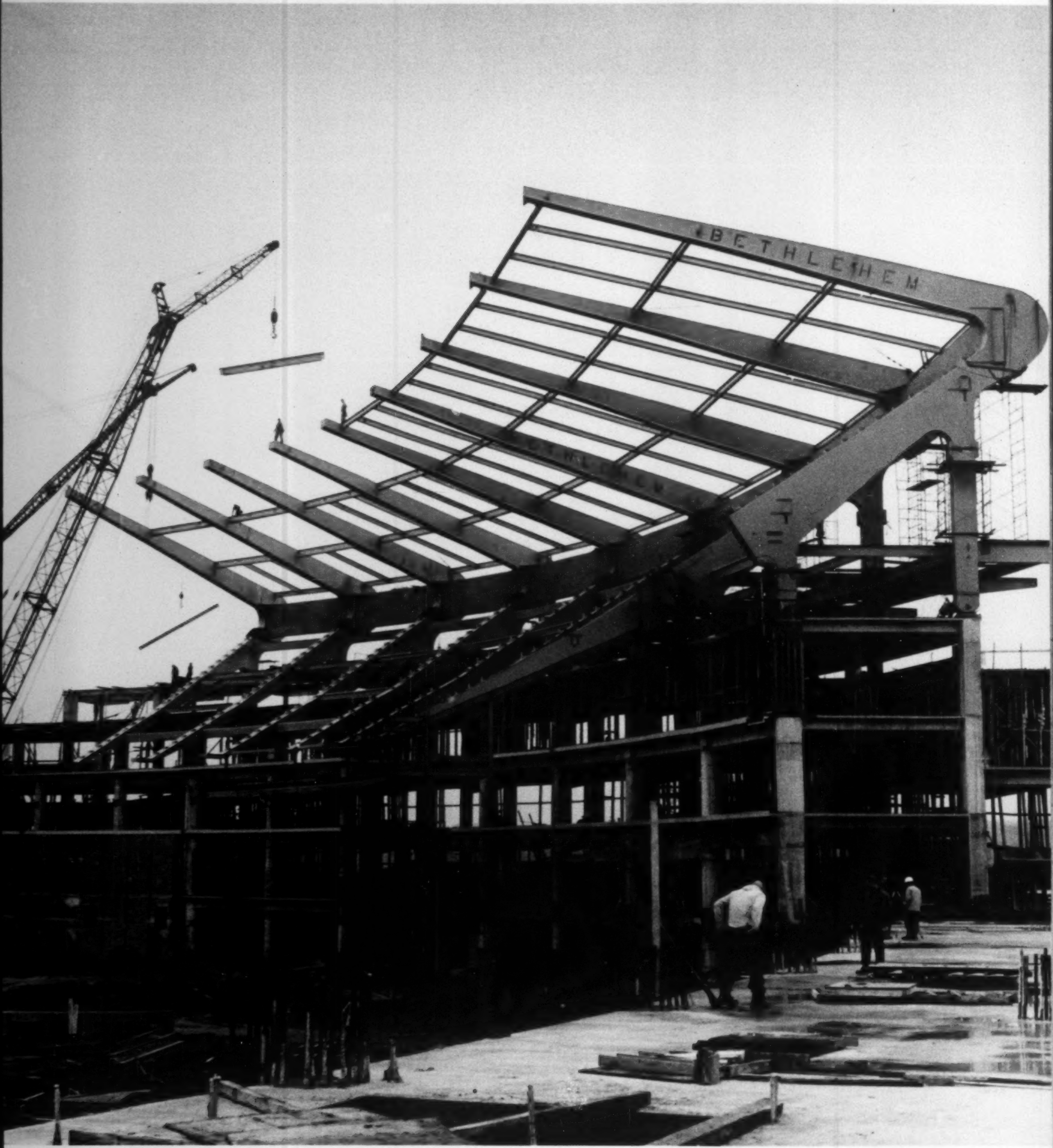
That's the International Building in the foreground, shown just after topping-out by a Bethlehem erection crew. The finished building will be a beauty, twenty-two stories high. And note how the floors cantilever out from the column perimeter, providing an extra column-free sixteen feet on all four sides. The job required 4,074 tons of structural steel, fabricated by Bethlehem, and connected in the field with 113,500 A-325 bolts, and 9,500 extra-high-strength bolts.

Owner: Natomas Company; *architect:* Anshen & Allen; *structural engineer:* John J. Gould & H. J. Degenkolb—Robert D. Dewell; *general contractor:* Dinwiddie Construction Co.

In the background, high on Nob Hill, stands the 29-story addition to the Fairmont Hotel. It, too, was fabricated and erected by Bethlehem, and was topped out late in 1960. Its 22-story tower springs from a massive, 7-story steel-framed base providing a three-level parking garage, a convention and exhibit hall, dancing pavilion, and delightful gardens. The structure contains 3,089 tons of structural steel, field-joined with some 92,000 A-325 bolts.

Owner: Fairmont Hotel Company; *architect:* Mario Gaidano; *structural engineer:* H. J. Brunnier; *general contractor:* Haas and Haynie Corporation.

Unique Steel Frames for Washington, D.C. Stadium



BETHLEHEM STEEL

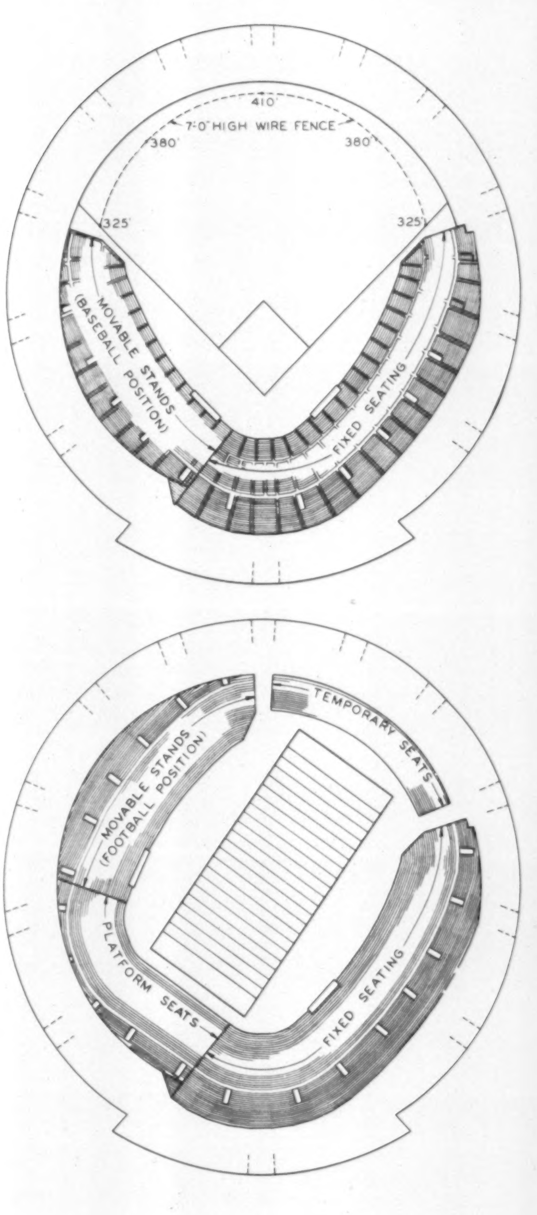
WASHINGTON, D.C.—A total of sixty-six giant steel frames will support the roof and upper-deck seating for the new District of Columbia Stadium.

The upper cantilever arm's 70-ft reach will support roofing to shelter a major portion of the seating. The lower cantilever, varying up to just over 60 ft in length, soars out over lower-level seating, avoiding any need for obstructing columns. Every seat in the "house" has a clear view of the playing field; capacity is 43,500 for baseball, 50,000 for football.

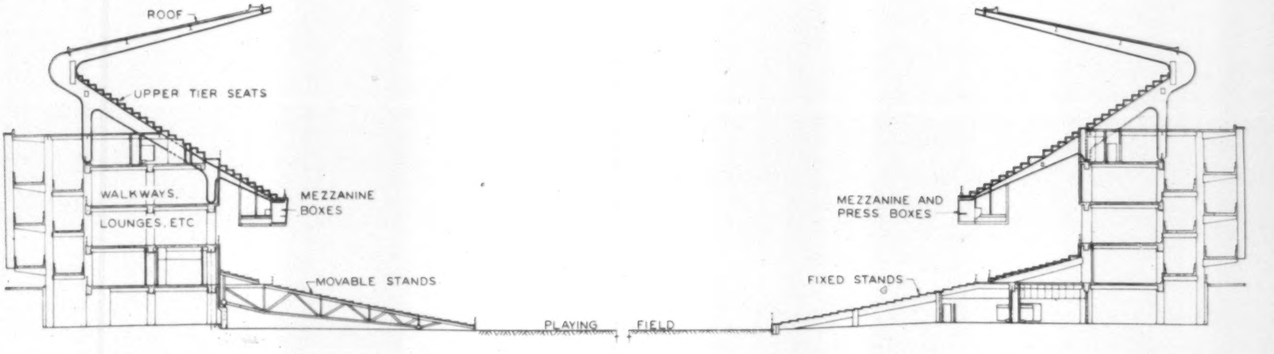
The nature of the job required that Bethlehem use erection equipment with unusually long reach. What you see here is a 35-ton-capacity stiffleg derrick (44-ft mast and 90-ft boom plus 15-ft jib) mounted on an 85-ft tower traveler movable over temporary tracks. An 80-ton-capacity crawler helps out. It has a 140-ft boom with 30-ft jib.

All sixty-six frames are of box design, combining great strength with neat appearance. They were shop-welded, using Bethlehem plates meeting ASTM A373, ranging in thickness from ⅝ in. to 1¾ in. The lower frame arm is readily identified by the seat brackets welded to its upper face. At the job site the assemblies were placed, in most places without falsework, temporarily fitted up, and later finish-welded in position. Located at about 30-ft intervals, the frames are supported laterally by welded box struts, welded into position, and wide-flange roof beams connected with high-strength structural bolts.

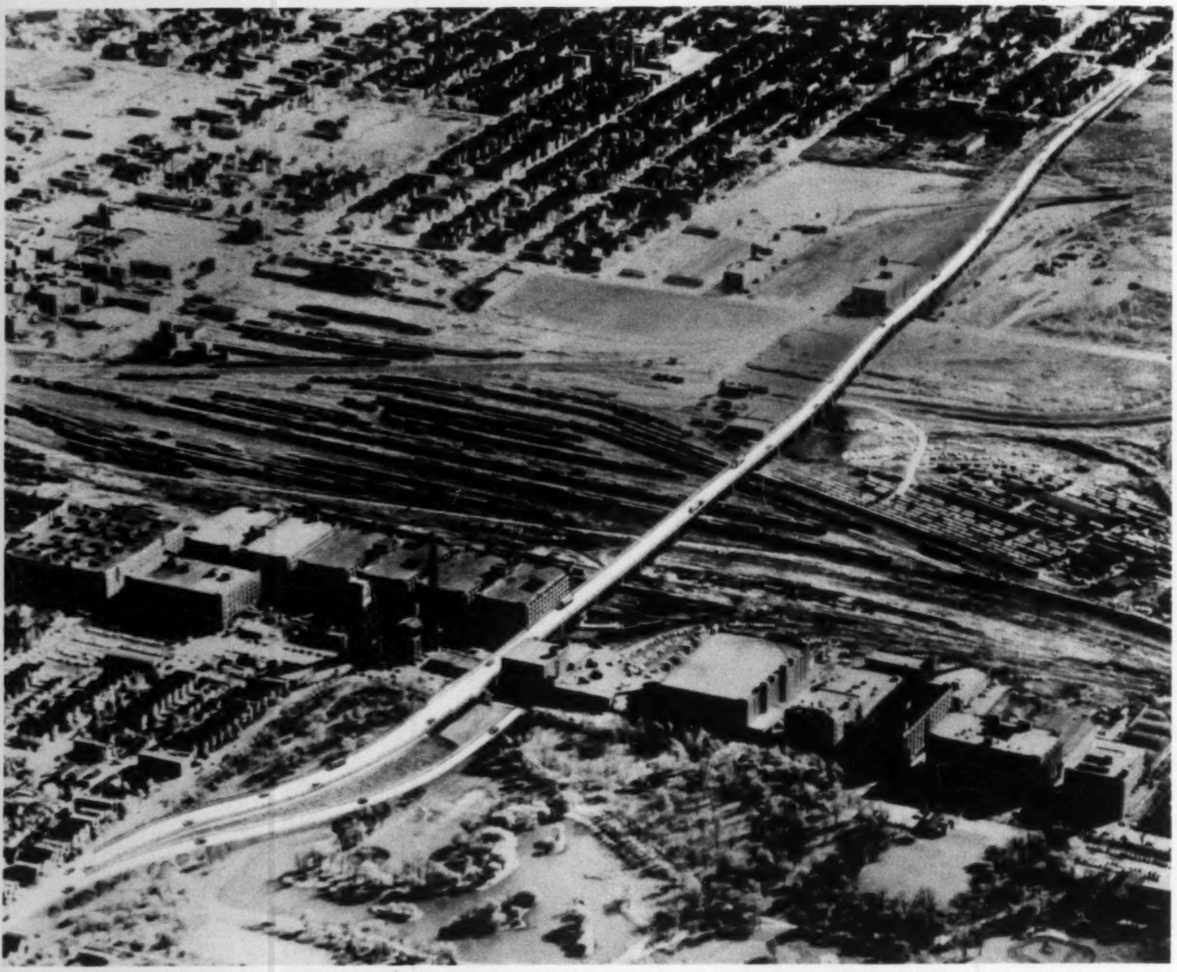
Owner: District of Columbia Armory Board; *architects and engineers:* Dahl-Erwin-Osborn. McCloskey & Co., Builders.


410'
7'-0" HIGH WIRE FENCE
380'
380'
325'
325'
MOVABLE STANDS (BASEBALL POSITION)
FIXED SEATING
TEMPORARY SEATS
MOVABLE STANDS (FOOTBALL POSITION)
PLATFORM SEATS
FIXED SEATING

Sketches show how the movable, 340-ft-long seating section works. This arrangement puts 80 per cent of the seats along the foul lines for baseball and 50 per cent along the sidelines for football.


ROOF
UPPER TIER SEATS
WALKWAYS,
LOUNGES, ETC
MEZZANINE BOXES
MOVABLE STANDS
PLAYING FIELD
MEZZANINE AND PRESS BOXES
FIXED STANDS

Typical section clarifies the stadium's novel design. Radius is 348½ ft to center of the outside column line. Maximum height from the playing surface to roofline is nearly 100 ft. Note the press box and mezzanine seating, suspended under the upper tier seats, and the movable stands on tapering, truss-like supports.



Artist's rendering of bridge superimposed on aerial photograph. From bottom, the new road crosses a corner of McKinley Park on fill, proceeds as a viaduct south over Pershing Road, through the Central Manufacturing District, over the railroad yards with minimum clearance of 22 ft, over 43rd Street and industrial spur lines, and back to grade at 47th Street.

We've Been Working Over the Railroad

CHICAGO—As every local motorist knows, you can't go very far in any direction without encountering a railroad right-of-way. Providing structures to move traffic over or under these formidable obstacles has always been a major concern of the City's Department of Public Works.

The last remaining obstructed portion of Damen Avenue, the stretch from West 37th Street to West 47th Street, is slated to be opened in November as a main traffic artery. This will mark completion of what is known as the South Damen Avenue Improvement, 6,700 ft of road construction, including a 4,750-ft viaduct.

The viaduct is where Bethlehem came in. As superstructure contractor, we began erecting steel for the multi-span elevated highway early in the year, and since that time have literally been working "over the railroad." Total structural steel requirement is roughly 9,000 tons, including both simple-beam spans and a large number of long and hefty continuous plate-girder spans.

Handling a great many pieces of steel within the busy Chicago Junction Railway Yards required careful scheduling of work, as well as the cooly efficient erection procedures you would expect of a thoroughly experienced organization. Equipment used on the job includes an 80-ton-capacity crawler, a 75-ton-capacity locomotive crane, and a traveler set up on the roadway.

Engineering design, field engineering, and construction work is handled by the Division of Bridges and Viaducts of the Bureau of Engineering, Department of Public Works. *Consulting engineer:* A. J. Boynton and Company; *contractor for viaduct substructures:* James P. McHugh Construction Company; *general contractor for approaches:* J. M. Corbett Company.

BETHLEHEM STEEL

The Boomingest Boulevard

LOS ANGELES—This is a bird's-eye view of Wilshire Boulevard as of January, 1961. The date is important, because few things go out of date quite so fast as photographs, facts, and figures of the boomingest boulevard in the land.

To give you a rough idea, at one point in 1960 reliable sources reported thirty-eight major buildings just completed, under construction, or planned—totaling some 8,000,000 sq ft of floor space. Informed observers estimate that office space on Wilshire will add up to 30,000,000 sq ft by 1970.

With land costs mounting steadily, and premium boulevard frontage going at $1,500 a foot, it's natural that the building trend has been skyward, limited only by the local building code.

Naturally, most of the behemoths of the boulevard have steel frames, many of which have been fabricated and erected by Bethlehem. In fact, since 1948 we have put up the steelwork for seventeen buildings, aggregating 195 floors of office space. And a number of elegant and noteworthy newcomers are now literally "in the works."

A few of the well-known Wilshire Boulevard buildings fabricated and erected by Bethlehem are as follows:

Travelers Insurance Company Building: 22 floors

IBM Building: 12 floors

Wilshire-Flower Building: 22 stories

3325 Wilshire (Catalina Tishman) Building: 12 floors

3440 Wilshire (Tishman): 3 buildings of 12 floors

Texaco, Inc., Building: 13 floors

Gershon-Scott Building: 13 floors

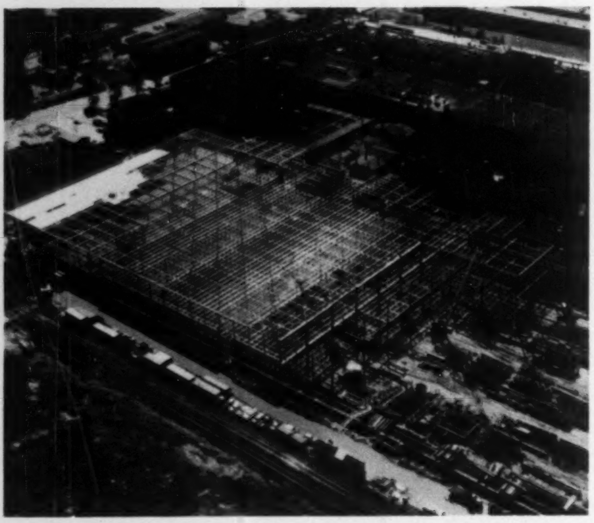
Wilshire-Grand: 9 floors, with 13-floor addition

Prudential Insurance Company Building: 12 floors

Tidewater Realty Company Building: 9 floors

Western & Southern Life Insurance Co. Building: 7 floors

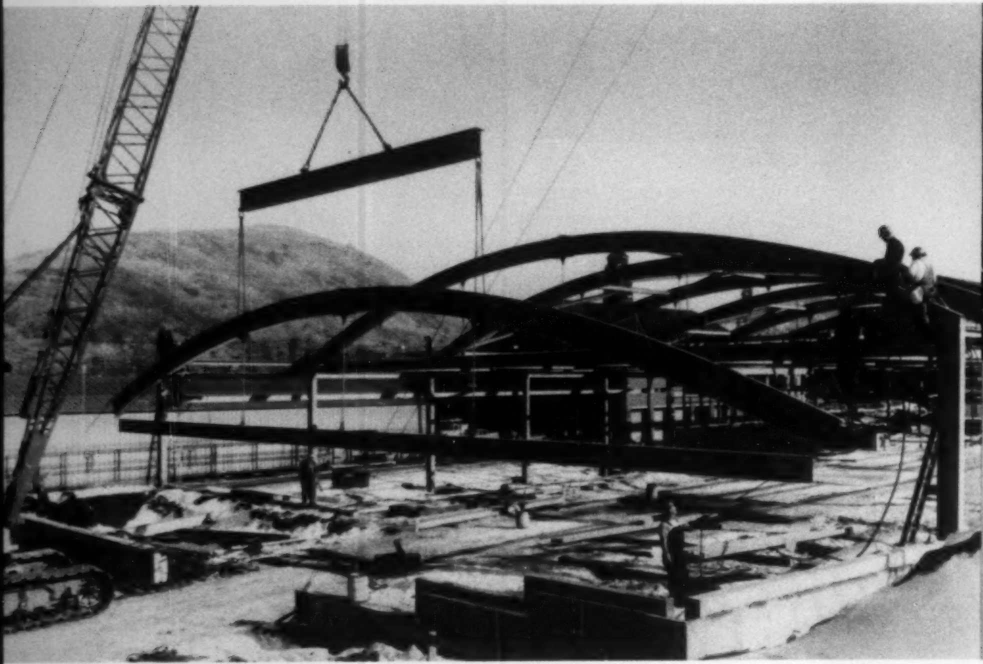
Linde Medical Plaza (in progress): 12 floors

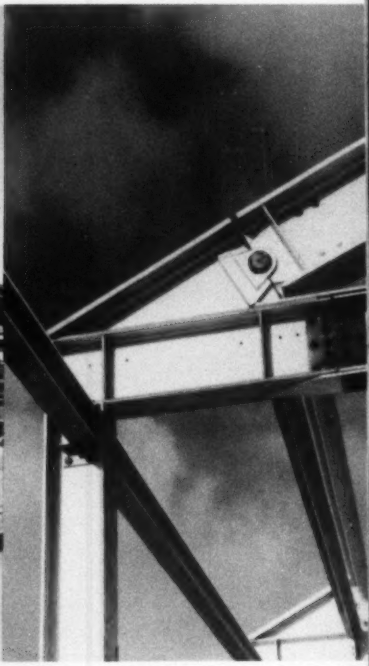


Chevy Expands in Baltimore

BALTIMORE—Slanting rays of the sun highlight the steelwork for a portion of a new addition nearly doubling the size of the already huge Chevrolet-Fisher Body plant. The job required a high-strength-bolted framework of approximately 7,100 tons of structural steel, fabricated and erected by Bethlehem.

Owner: Chevrolet Motor Division, General Motors Corporation; *engineer:* George H. Miehls—Albert Kahn Associated Architects and Engineers, consultants; *general contractor:* Consolidated Engineering Company, Inc.





A pin connector, high-strength bolts, and welding were used in the arch-to-column connections.

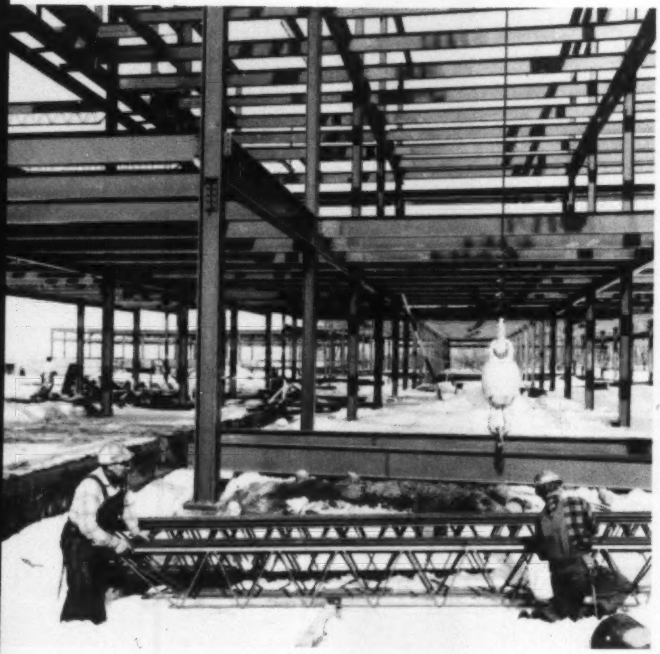
Tied Arches to Span 97 Ft

JOHNSTOWN, PA.—Up goes one of seven two-hinged tied arches for Pennsylvania Electric Company's new storage and line building. Thanks to their 97-ft span, there are no obstructing columns within the building's 300-ft-long floor area. The arches (24 WF 94) rise 13 ft above the chords (18 WF 55 up to 18 WF 85), and will be exposed above the roof of the completed building.

This structure is but one of a complex of facilities for the utility's new system headquarters and divisional service center in Johnstown. All the buildings are framed with structural steel, fabricated and erected by Bethlehem. Largest of all is the headquarters building, 220 ft long and four stories high, plus a two-story wing. It is planned as a model of efficiency and comfort, with electricity supplying the power for a combination heating, cooling and air-cleaning system, and snow melting.

Owner: Pennsylvania Electric Company; *architect:* Lacy, Atherton and Davis; *structural engineer:* A. W. Lookup Co.; *general contractor:* Sordoni Construction Co.

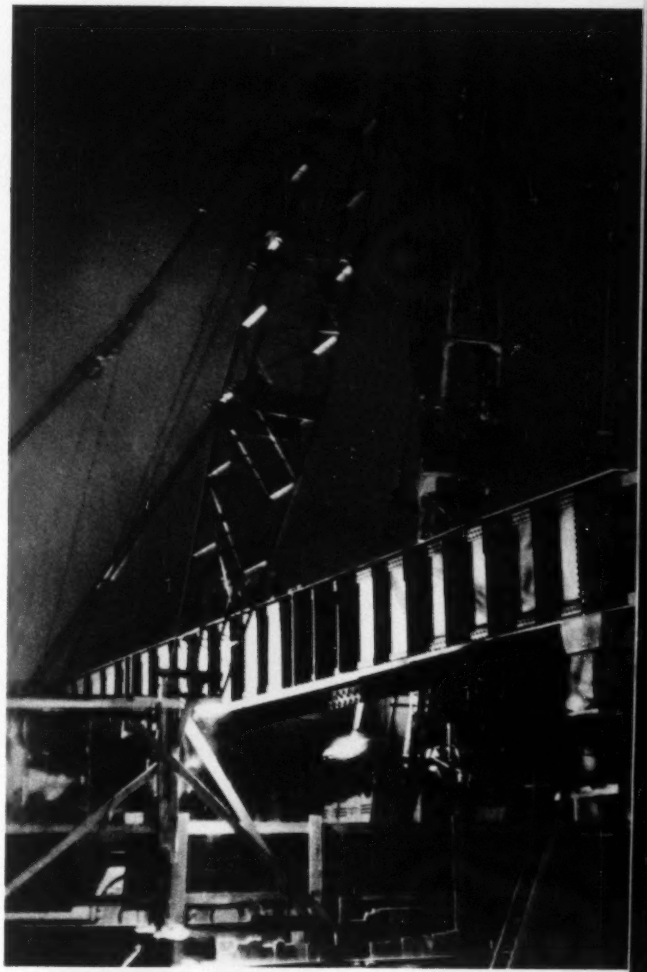
BETHLEHEM STEEL



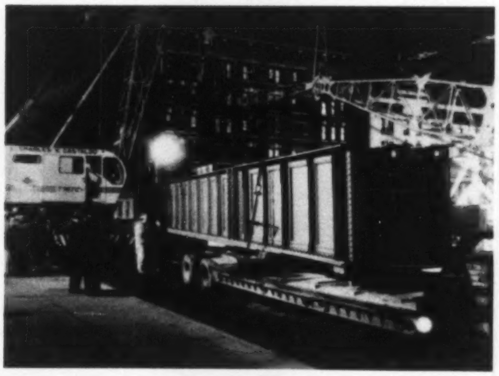
Steel for Space Study

VALLEY FORGE, PA.—Nearly two hundred years ago a rugged winter earned this community an indelible spot in the history of our country. The weather was equally severe last winter. But snow on the ground and sub-freezing air didn't prevent Bethlehem ironworkers from speeding ahead with steel framing for General Electric Company's $30 million Space Technology Center—research and development laboratories for the Missile and Space Vehicle Department. The 800,000-sq-ft facility is 17 miles west of Philadelphia, just off the Pennsylvania Turnpike on a 130-acre site.

Credits for various phases of the work: United Engineers and Constructors, Inc. (engineering and architecture); Vincent G. Kling (architecture); Jackson & Moreland, Inc. (engineering).



Big Box Girder for Bus Station



NEW YORK CITY—Ever see a building component as massive as this one? It's 150 ft long, and weighs a solid 205 tons. It is one of the four box girders for the George Washington Bridge Bus Station in New York City. They span Fort Washington Avenue, supporting the ramps between the station and the bridge.

The bus station extends for two city blocks on three levels, and requires 5,770 tons of structural steel, all fabricated at Bethlehem's Pottstown Works, and being erected by Bethlehem crews. Trans-bridge buses will be using the huge new facility beginning in summer of 1962.

Owner: The Port of New York Authority; *designed by:* Port Authority engineers. These box girders are part of the structure which supports the unique roof over the Bus Station, designed by Dr. Pier Luigi Nervi.

Late News Flashes

Hartford, Conn. -- In February, Bethlehem ironworkers began erecting the steelwork for 100 Constitution Plaza, a handsome, 18-story office building for the Constitution Plaza urban renewal project. Nearby, work is now under way on the 20-story Connecticut Bank & Trust Company building. This is the tallest structure thus far designed to take advantage of the dramatic economies possible with the new ASTM A-36 structural steel.

San Francisco -- Contracts have been awarded for the United States Court House and Federal Office Building, which will boast more floor space than any other office building west of Chicago. Twenty stories high, it's to be sheathed with a combination of limestone, granite, and metal curtain walls. Bethlehem is supplying over 18,000 tons of structural steel for the frame.

Beaver Falls, Pa. -- Work has begun on the largest bridge project currently under way by the Pennsylvania Department of Highways. It's the Beaver Falls Bridge, a 3-span continuous through-truss structure extending 840 ft over the Beaver River. It replaces a nearby Whipple truss bridge, vintage 1884.

New York City -- Bethlehem ironworkers recently began erecting the 30-story framework for the Bankers Trust Building, on the west side of Park Avenue between 48th and 49th streets. The trickiest phase of putting up approximately 5,800 tons of steel is underground, where steel columns and beams have to be placed in between and over two levels of railroad tracks. The bank, which will occupy 60 per cent of the building, is leasing from the owners, Rose Associates.

(Lack of space makes it impossible to list the professional firms responsible for the above projects. Names will be furnished on request.)

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Catalog 223. Contains useful data and specifications on steel H-piles.

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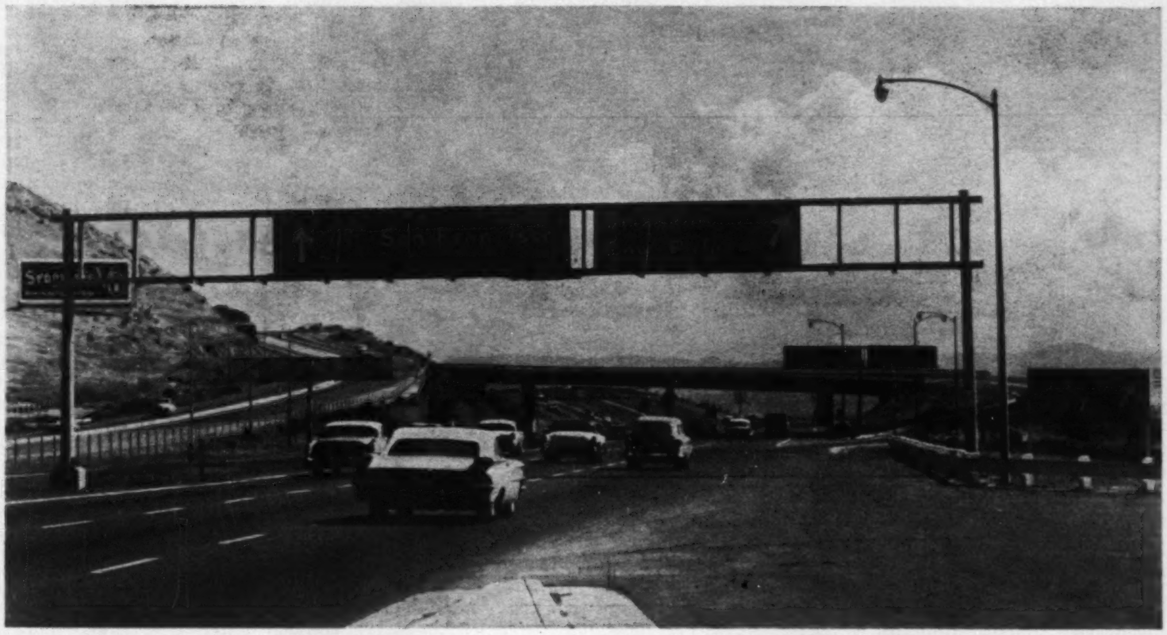


Expressway has plenty of "hardware"—signs, guard rails, bridge rails, fences, light standards.

How To Design Highway Hardware

The United States Steel Corp. has published the first of two "Technical Notebooks on Highway Hardware." It covers the design of steel signs and sign supports.

The second volume, which will be published this summer, will deal with bridge railings, light standards, guard rails and right-of-way fencing.

The loose-leaf style manuals include criteria, specifications and detailed designs for various grades of steel. Volume I stresses use of the newer high-strength, low-alloy steels that have increased resistance to corrosion.

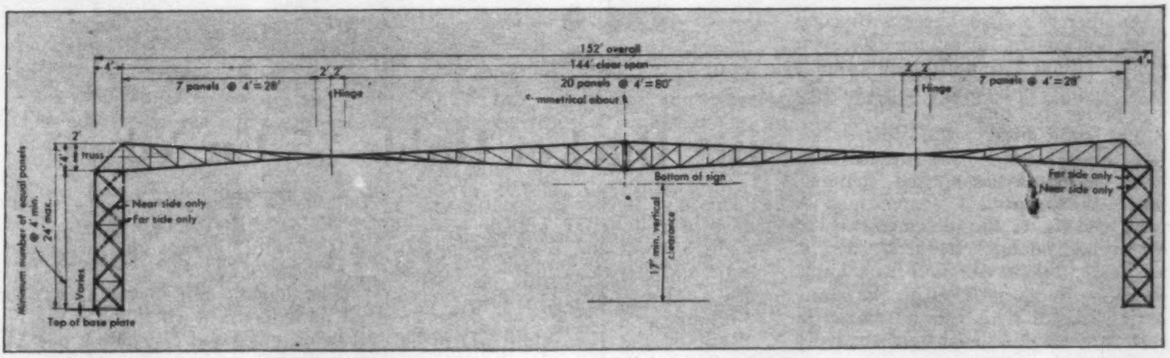
Engineers can use the information to design the larger signs and more frequent overhead installations required on expressways, as well as for more conventional signs.

Volume I has five sections and an Appendix. The first is general in nature. The second will contain the "Specifications for Highway Signs" now in preparation by a joint AASHO-ARBA committee.

Section 3 discusses and illustrates the steps necessary to design several sign support structures, including overhead and roadside applications. The fourth section covers the design of sign faces for small, simple sheet signs and the larger directional type sign panels. Section 5 contains samples of current design practices for steel sign supports used by different highway organizations. The Appendix has examples of designs from the notebook and the equations used in establishing the designs.

The designer will have a choice of several alternate designs in different steels in order to judge efficiency, economy and aesthetics with minimum effort.

(Please turn the page)


152' overall
144' clear span
4'
4'
7 panels @ 4'=28'
2' 2'
Hinge
20 panels @ 4'=80'
Symmetrical about ℄
2' 2'
Hinge
7 panels @ 4'=28'
2'
4'
truss
Minimum number of equal panels @ 4' min. 24' max.
Varies
Top of base plate
Near side only
Far side only
Bottom of sign
17' min. vertical clearance
Far side only
Near side only

CANTILEVERED and suspended truss structure is one of the sign support designs in U. S. Steel's new manual.

SHORT SUSPENDED SPAN is less susceptible to vibration than other designs of same over-all length, designers say.

Specifications used in designing the sign structures include wind pressures of 30, 40 and 50 lb per sq ft, maximum vertical deflections equal to $d^2/400$ (d=sign depth) and ice loadings.

The sign support structures detailed in the notebook are said to comply in all respects with the November 1960 draft of the AASHO specifications. Alternate designs are for steels having basic design stresses in tension of 20,000 and 27,000 psi. These stresses correspond to A36 and A242 steels.

Volume I describes two types of supports for overhead signs—bridges spanning the roadway and cantilever structures. A cantilevered mounting in which signs extend from both sides of a single column is referred to as a "butterfly."

Wilbur Smith and Associates, consulting engineers of New Haven, Conn., compiled and developed designs for three types of sign bridges. All are trussed structures.

One is a simply supported box truss of uniform section. Depth of the truss increases for longer spans to keep vertical deflections within allowable limits.

Another is a rigid frame with good deflection control for intermediate span ranges. Pinned column base connections simplify foundation design for this sign bridge.

The third bridge is a tapered box truss hung between two trussed cantilevers mounted on trussed columns. Since the suspended center span is relatively short, the designers say, it has a high natural frequency and is less susceptible to vibration than simple or rigid frame bridges of the same overall length. This permits control of vertical deflection in longer spans without increasing truss depth.

The manual makes design of each type of bridge easy. Design of the simple span bridge requires simple substitutions in a few formulas and slide rule computations that take a few minutes. The designer can select truss members for the other two bridge types from detailed tabulations. All three can be designed with various types of members and in various steels.

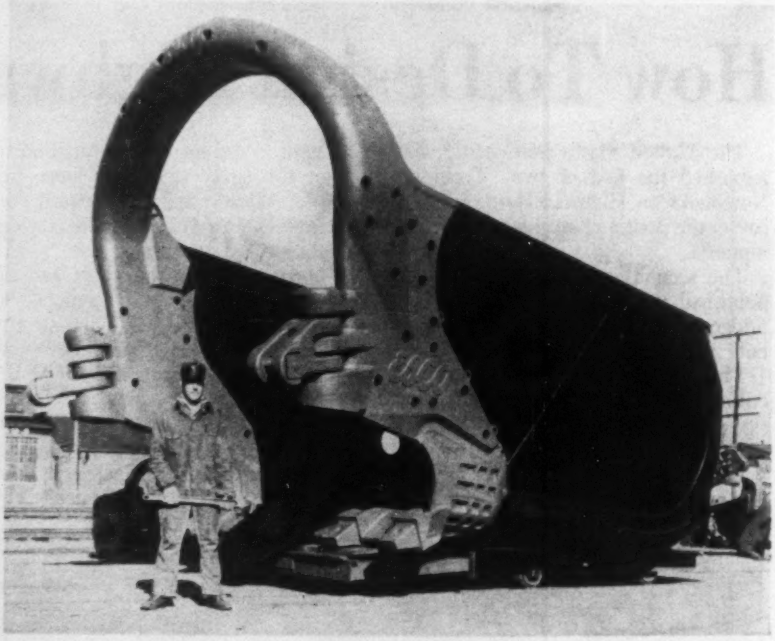
The manual contains designs for cantilevered sign supports for 30, 40 and 50 psf wind pressures and for both A36 and A242 steels. Pipe is used for the cantilevered support members because of its good resistance to torsion. The design has a trussed cantilever arm. Tables give sizes of structural members for use with various widths and depths of signs.

The book contains a step-by-step procedure for design of supports for butterfly signs.

Ground-mounted signs (such as regulatory and warning signs) are small enough to be supported by one or two posts. The manual gives tabulated information for post selection.

The book also includes information on the design of signs. It recommends sheet steel for sign faces up to 6 ft wide. Wider signs require stiffening of face panels to control vibration and deflection.

The manual gives design data on a system of built-up face panels for large directional signs.



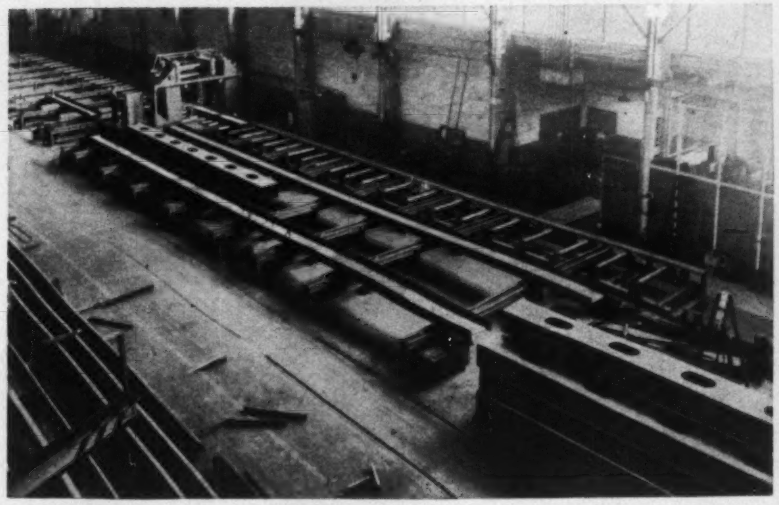
Big Bucket Holds 35 Cu Yd

This drag bucket can gobble up 35 cu yd of material at a single bite. It weighs 35 tons and is cast by an all-electric shovel with a 220-ft-boom rigged with a 2¾-in. rope. The drag line is 3⅛-in. rope.

Built by the Esco Corp., Danville, Ill., the bucket is 13 ft long, 10 ft wide and has a rated capacity of 5½ tons.

Welded high-strength steel in thicknesses up to 5 in. was used to fabricate the bucket.

The dragline unit is working an open pit mine in Brazil where it can dig 170 ft below grade and cast onto a pile 110 ft high, 425 ft away.



Automation is aim in modernization of R. C. Mahon structural steel plant.

Fabricator Moves to Cut His Costs

In line with the trend to more efficient steel shop fabrication, R. C. Mahon Co. is replacing all production equipment in its 76-acre, ¾-mile-long structural steel plant in Detroit with more automatic equipment. The modernization program is expected to be completed in 1966.

Most important step in the program to date is the installation of a drilling machine with electronic, numerical positioning controls. Cost savings of about 85% in drilling holes were achieved in its initial application on bridge members of high-strength steel. The savings are attributed to elimination of layout operations, use of high-speed drilling and feeding of structural members on conveyors through the tape-controlled machine.

The company also has installed a conveyorized paint system, 15 ft wide and 400 ft long. It incorporates a paint spray booth that is claimed to be the largest in the industry. The conveyor moves at 5 ft per min has a capacity of ¾-ton per lin ft, so that the equipment has a theoretical capacity of more than 1,500 tons per eight-hour shift. The new system has cut painting costs in half.

The modernization program, on which $600,000 has been spent in the last two years, calls, in addition, for installation of high-speed automatic submerged-arc welding equipment. The larger tandem units of this type operate up to five times faster than manual units.

W. F. Sheetz, company president says, "The objective of our modernization program is to fabricate steel structures in the shortest possible time and at the lowest possible cost. We are meeting this objective through greater integration of our plant operations with modern metalworking methods combined with the latest materials handling and live storage techniques."

Synthetic Rubber Used In Road Repair Tests

Massachusetts, one of the states that pioneered the testing of natural rubber in asphalt road construction, is now trying a synthetic rubber in road maintenance and repair.

The material, called Naugapol 3112, was developed by U. S. Rubber Co. in conjunction with engineers of the Massachusetts Department of Public Works. It's a polymer, produced in small dry granules, that increase the viscosity and elasticity of asphalt when quantities as little as 3% by weight have been added.

So far, the tests have been limited to resurfacing some 30 miles of old, high-crown roads that had been leveled. While the rigors of a single winter are an inadequate test for any road material, the results have been so encouraging that DPW has recently let five new contracts for similar work.

The principal advantages claimed for the new material are shorter down time for roads and a reduction in the amount of materials used. For simple resurfacing a ⅜ in. coating of hot mix is applied. For complete resurfacing ½ to ¾ in. thick coat is used.

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Both the TS-14 and TS-24 have proved outstanding performers and big producers on a wide range of work from big yardage projects to smaller jobs. With separate Torqmatic Drives and power trains for each axle, these "Eucs" work on grades and under adverse job conditions that stall other scrapers. Each is a one-man earthmoving spread that can work without a pusher tractor . . . each has plenty of power and traction to pick up a heaped load in a hurry . . . pull out of the pit fast . . . and really highball on the haul to the fill and return.

If you want 14 or 24 yd. scrapers (20 and 32 yds. heaped) that can work more days per year . . . that can handle more kinds of work and give you bigger production . . . ask your dealer for the facts and figures that show why all-wheel drive Euclid "Twins" give you a better return on your investment.

EUCLID **Division of General Motors, Cleveland 17, Ohio**
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

◀ ***TS-14*** *296 total h.p. . . . struck capacity of 14 yds. . . . 4-speed Torqmatic Drives with converter lock-up.*

TS-24 *563 total h.p. . . . capacity of 24 yds. struck, 32 yds. heaped . . . 27.00 x 33.5 tires with 33.5 x 33 optional.* ▶

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in such grades as "T-1", "T-1" type A, 9% Nickel and HY-80 Constructional Alloy and Armor Steels

Announcing another industry "first" for United States Steel—USS Quenched and Tempered Alloy and Armor Steel Structural Shapes are now commercially available for the first time anywhere, in the types and sizes shown in the accompanying tables. The more commonly used sizes of American Standard Beams, Channels, Equal Angles and Unequal Angles will be produced in these USS Steels: "T-1", "T-1" type A, 9% Nickel, HY-80 and certain other alloy grades that provide desirable mechanical properties after quenching and tempering. Later, other sizes and shapes will be added according to demand.

These quenched and tempered alloy and armor steel structural shapes (see table below) can simplify design and result in substantial weight savings, increased structural strength and reduced shipping and handling costs. For a free folder about any of these steels or their structural shapes, contact your local USS representative or write to United States Steel, Room 6311, 525 William Penn Place, Pittsburgh 30, Pa. USS and "T-1" are registered trademarks

United States Steel Corporation • Columbia-Geneva Steel Division • Tennessee Coal & Iron Division • United States Steel Supply Division • United States Steel Export Company

Availability Quenched and Tempered standard structural shapes are available in the following shapes and sizes:

I	Beams: 6″ to 12″ inclusive	American Standard Sections and Foot Weights*
[	Channels: 6″ to 15″ inclusive	American Standard Sections and Foot Weights*
L	Equal Angles: 3″ to 8″ inclusive	Standard Sections*
L	Unequal Angles: 3½″ x 3″ to 8″ x 6″ inclusive Maximum Length 40′ for all sections	Standard Sections*

*See our booklet, "USS Shapes & Plates," ADUCO-27001

Mechanical Properties of Quenched and Tempered Alloy and Armor Steel Structural Shapes

	Yield Strength, psi	Tensile Strength, psi	Elong. in 2″, % min.	Reduction of Area, % min.	Longitudinal Charpy Impact (when specified)	
					Keyhole	V-notch
"T-1" Steel 2½″ and Under	100,000 (min.)	115,000/140,000	18	55①	15 ft.-lbs. @ −50F	30 ft.-lbs. @ +10F
"T-1" type A 1″ and Under	100,000 (min.)	115,000/140,000	18③	45⑤	15 ft.-lbs. @ −50F	—
Grade A 9% Nickel	60,000 min.	90,000 min.	22% min.	—	15 ft.-lbs. @ −320F	20 ft.-lbs. @ −320F
Grade B 9% Nickel	65,000 min.	95,000 min.	20% min.			
HY-80 ¼″-2″ Incl.	80,000/100,000②	—	19④	—	—	70 ft.-lbs. @ −120F

①¼″ and under—45% min.
②½″ and over, yield strength range is 80/95,000 psi
③¾″ to 1″ inclusive, elongation 16% min.
④½″ to 2″ inclusive, elongation 20% min.
⑤¾″ to 1″ inclusive, 55% min.

United States Steel

New Products

A Square Joins the Lamp Line

General Electric Co. will produce a thin, square fluorescent lamp. It will be marketed through GE distributors at $6.95, probably this fall when fixture manufacturers make fixtures for it available.

First production models, in cool white, will emit equal amounts of light from front and back. A second lamp will have a reflector back to direct most of the light from the face. Delux whites and lamps with colored back plates are also scheduled for production.

The basic lamp is 11⅜ in. square and 1½ in. deep. The total arc path compressed in the square is 5 ft long. Glass waffle squares, 1¾ in., diffuse light and give structural strength to the face. Bi-pin terminals, behind the outer rim at adjacent corners and within the overall dimensions of the lamp, make installation easy.

Each lamp can be operated at either 80 or 50 watts to give 4,800 or 2,900 lumens at efficiencies of 60 and 58 lumens per watt, respectively. Brightness at 80 watts is 3,200 ft-lamberts. And average life is 7,500 hours at either wattage.

Manufacture of the lamp requires molding two individual squares of glass. One serves as the configurated face plate.

The other, with an open trough looping six times across the lamp, forms the channel for the arc stream. GENERAL ELECTRIC CO., NELA PARK, CLEVELAND 12, OHIO.

Ready-Mixed Cement Mortar

Another ready-mixed material has joined the long line of powdered instant products. The newcomer is Instant Crete, a preblended cement mortar that offers quality control, high strength and dollar savings.

Instant Crete is produced at 2½ tons per minute by a high-speed blending process. The process, called cyclo-blending, mixes cement, sand, lime, waterproofer, bonding chemicals, plasticity agents, an anti-efflorescence additive and a choice of coloring agents. According to the manufacturer, the mixture is so thoroughly blended that every grain of sand is coated with cement.

Result: guaranteed quality control on the job. All the mason does is add enough water to make the material plastic, then butter it on the building blocks. Other advantages: reduced wastage, consistency of batches, and increased productivity. The manufacturer claims that the average bricklayer can lay up to 25% more bricks per hour with Instant Crete.

In performance tests certified by the Medusa Portland Cement Co., mortar made with Instant Crete exhibited compressive strengths as high as 8,120 psi. And in waterproofing tests (in accordance with ASTM C-270) water retention characteristics were in the 75 to 83% range. A maximum of 4% absorption was recorded in tests made in accordance with Federal Specification SSC-181 c. INTANT CRETE CORP., 1130 E. ST. GEORGE AVE., LINDEN, N. J.

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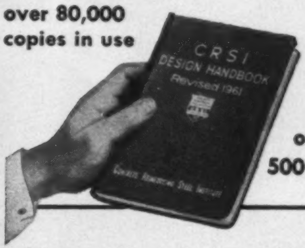

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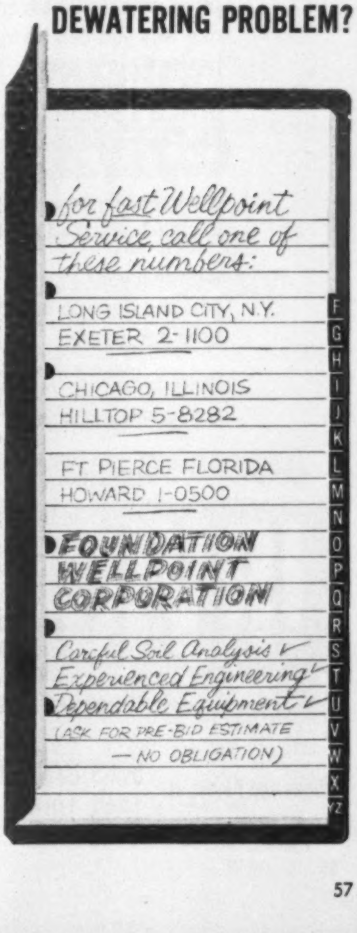

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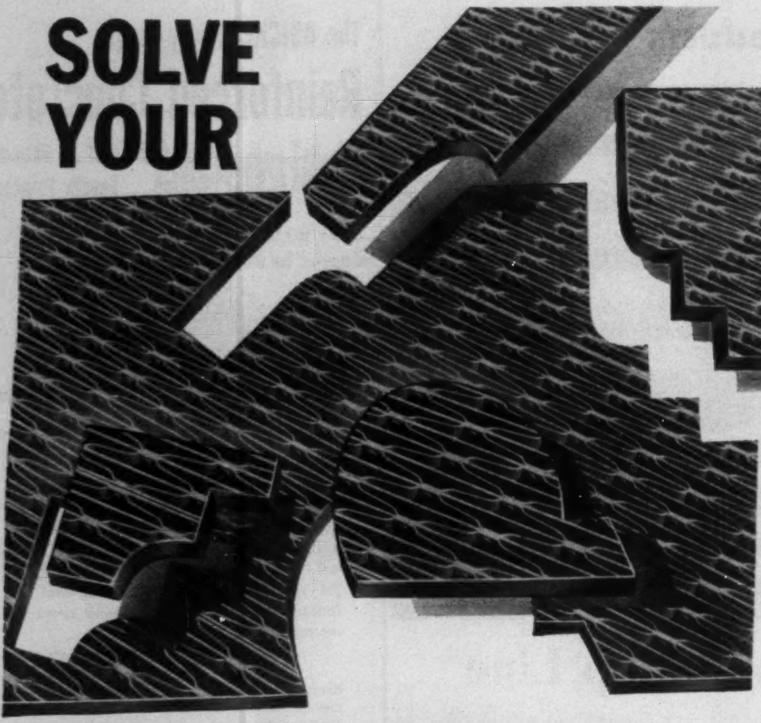

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1863 10th St., OAKLAND 20, CALIFORNIA

Portable Elevator Gets Increased Safety Factors

Three safety improvements have been made on the Hawkeye portable personnel elevator, though it already meets typical insurance regulations and safety codes.

The new model, which travels on a monorail at 62 fpm, is powered in ascent and descent by a direct-drive, 10-hp motor.

Lift cables and power unit now are combined with a larger cable drum. The new drum is 24 in. in diameter, giving a 48:1 cable-to-drum ratio—thus minimizing bending stresses.

A new manual-stop safety device, with independent mechanical linkage, has been added to existing safety controls (over-speed governor, broken-cable stop).

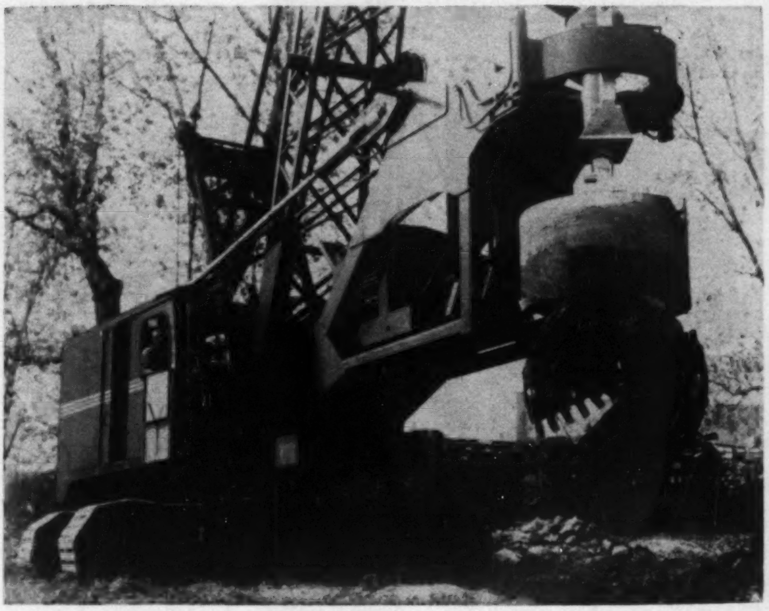
The elevator holds eight passengers, or 2,000 lb. It can be used for permanent and temporary setups, depending on column bracing and monorail installation. Hawkeye Products Corp., 212 Dey Building, Iowa City, Iowa.

Fixed-Boom Unloader Lifts Like a Crane

Hi-Lo boom unloader, for bricks and other building materials, combines the advantages of a crane and a fixed-boom. Boom assembly, when mounted on a truck or trailer bed, rotates 360 deg and rises 60 deg from horizontal. Adjustable fork-lift assembly can be removed; wire slings and other material holders can be attached to lifting cables.

Movement of boom is remotely controlled by a cable-connected switch box.

Two-ton loads can be spotted 20 ft above ground, 15 ft below ground and 17 ft away from the mast center at ground. Side-O-Matic Unloader Corp., P. O. Box 1561, York, Pa.



Changing a Crane to an Earthdrill

A bucket-type drill attachment is available that can convert any 1½-cu yd crawler or truck crane to a high-speed earthdrill.

Called the Series 150-C, the drill bores holes from 1 to 14 ft in diameter to depths of 200 ft at rates up to 60 ft per hr. Bucket capacity is 1½ cu yd. Holes may be vertical or slanted to a 1 to 3 batter.

The rig is a self-contained unit that can be operated independently of crane power. A gasoline or diesel engine is furnished.

The maker says the attachment can be mounted on the crane in less than 30 minutes. One man can operate the drill from controls placed in the cab of the crane.

A companion drill attachment, called the Series 100-C, is available for ¾ or 1-cu-yd crawler or truck cranes. CALWELD, INC., 7222 E. SLAUSON AVENUE, LOS ANGELES 22, CALIF.

Briefs . . .

Brick-size Vents

Cast-aluminum air intake or exhaust for unit air conditioners. 18 modular sizes. Fixed or operating louvers. Also can be used for ventilation of roof and crawl spaces, boiler rooms, bathrooms and kitchens. CONSTRUCTION SPECIALTIES INC., CRANFORD, N. J.

Roof Sealer

Wet-Seal, for repairing roof surfaces even when wet. Ready to use in solid or liquid form. Oil in sealer is compatible with water, stays waterproof when dry. REVERE CHEMICAL CORP., 2010 E. 102ND ST. CLEVELAND 6, OHIO.

Spray Pump

Portable slurry and texture gun, for paint, acoustical plaster, waterproofing and finish coats. Weighs, 125 lb; capacity 4,000 sq ft per day. $375 fob manufaceurer. AIR PLACEMENT EQUIPMENT CO., 1000 W. 25TH ST., KANSAS CITY 8, MO.

Shingle Shear

Dual purpose, for hand cutting and punching asbestos, slate and other shingles up to ¼ in. thick. Factory sharpening and repair for a low fee. With safety clip. KARL KLENK, INC., WILMINGTON 1, DEL.

Heat Pump

Three hp, model 3204. Cooling capacity 33,000 Btu/hr; heating capacity: 32,000 Btu/hr. Checklight shows when compressor is operating. Indoor, outdoor blowers work independently. CHRYSLER AIRTEMP, P.O. BOX 1037, DAYTON 1, OHIO.

Spray Pump

Air operated. For applying mastics, fibrated insulating and protective coatings, abrasive and acoustic materials, stucco finishes and high-viscosity cements. Will pump 30 to 40 bbl per day of emulsion through hose 300 to 400 ft long. Eight models. GROVER MFG. CO., 850 E. VALLEY BLVD., SAN GABRIEL, CALIF.

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New Product Briefs

Jig Saw

Model 160 cuts at 3,200 strokes per minute through wood, plastic and composition materials; metal, at 2,600 strokes. Makes 2½-in. cuts in wood, ¾-in. in aluminum, and ¼-in. steel. Cost: $99.50, with four blades and rip fence. Skil Corp., 5033 Elston Ave., Chicago 30, Ill.

Hoist Assembly

Attaches to standard scaffold. Lifting arms winch up and down, roll horizontally. Up-Right Scaffolds, 1013 Pardee St., Berkely, Calif.

Fork-Lift Truck

M-40 has an automatic transmission-and-clutch only 14 in. long. Two-speed, no clutch. Rear wheels independently suspended. Maximum lift: 4,000 lb up to 130 in. Fuels: gasoline or LP gas. Minneapolis-Moline Co., Hopkins, Minn.

Daylighting Panels

Triple-reinforced glass-fiber laminate for roof and sidewall lighting. Bonding agent, 100% acrylic resin. In four colors; light transmission ranges from 60% to 80%. Panels nest with metal siding and roofing; no sash, no framing needed. Owens-Corning Fiberglas Corp., 717 Fifth Ave., New York, N.Y.

Hand Drills

Two low-priced ball-bearing type electric drills, Model 70 (¼-in., 2.5 amp motor) at $22.50; Model 76 (⅜-in., 2.8 amp motor), $42.50. Skil Corp., 5033 Elston Ave., Chicago 30, Ill.

High-Strength Form Tie

Safe load: 5,000 lb. Ultimate capacity: 7,000 lb. Tie holders and stud rods quickly, easily removed. Superior Concrete Accessories, Inc., 9301 King St., Franklin Park, Ill.

Iron-Powder Electrode

Improved physical and mechanical properties. AWS class E-7018, for all position, ac-dc reverse polarity welding. Speedex HTS line has excellent impact strength. Deposits meet MIL Spec E-22200/1 for low-hydrogen electrodes. Metal & Thermit Corp., General Offices, Rahway, N. J.

Nonslip Coating

Brush-on paint roughens metal, tile and other smooth walking surfaces exposed to weather. Available in white and colors, in two grades of roughness. Akron Paint & Varnish Co., Industrial Finishes Div., Akron, Ohio.

Materials Prices

Monthly Market Quotations By ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, May 18; Next, June 22.
- Wage Rates Building Board Insulation: Last, May 4; Next, June 1
- Iron & Steel Products, Pipe: Last May 11; Next, June 15.
- Cement, Aggregate, Ready Mixed Concrete, Asphalt: Last, May 4; Next, June 8.

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STRUCTURAL CLAY TILE																							
partition-scored																							
3x12x12 in	M	$154.95pe	$217.00	$135.00pss	$232.00†	$137.00ll	$179.00mmjvv	$205.00ff	$162.00	$170.00	$257.00	$158.00	r	$218.00pe	$178.00	$236.00wwh	$258.00ss	$200.00t	$180.00mmpp	$156.85*	$235.00pt	$168.78Ruqoo	$169.00rr
4x12x12 in	"	154.95pkke	231.00	152.00pss	248.00†mm	149.00ll	190.00mmjvv	219.00ff	162.00	185.00	274.00	158.00	r	225.00pe	178.00	315.00wwh	276.00ss	213.00t	199.00pp	177.10*	270.00pt	180.93auqoo	185.50rr
8x12x12 in	"	309.90pe	434.00	....	463.25†mm	280.00ll	355.00jddmm	410.00	318.75	310.00	514.00	312.00	r	452.00pe	371.25	378.00wwch	517.00ssxx	400.00t	380.00pp	235.30dd	490.00pt	325.00ausqoo	360.00rr
Load Bearing—Scored																							
8x12x12 in	"	387.40pe	491.00	303.00p	556.00†mm	....	390.00jmmvv	465.00ff	387.00	310.00	582.00	312.00	r	225.00pwe	371.25	384.00wwhn	586.00ss	453.00t	410.00pp	159.40qq	265.00pwt	220.00qoo	281.50rr
10x12x12 in	"	....	602.00	376.00p	....	....	422.00jmmvv	....	472.50	390.00	767.00	400.00	r	....	....	....	....	607.00t	440.00pp	....	....	400.00qoo	405.00rr
12x12x12 in	"	....	690.00	465.00p	....	....	500.00jmmvv	709.00ff	385.00	442.00	876.00	500.00	r	....	....	....	....	693.00t	621.50pp	....	....	....	....
BRICK, common backing	"	33.25uu	36.00	27.00j	43.50p	32.00	50.00jk	43.25tt	32.00	35.00xx	53.50pmm	34.00	$42.00uu	49.50vpe	42.00	46.00p	40.00mm	42.00t	44.00mmpp	43.00*	57.00t	48.25b	25.00rr
Straight hard	"	33.25uu	41.00	38.00j	58.00p	34.00	49.00jk	47.25ggtt	53.00	54.00	54.00pmm	34.00	44.00	58.00ype	55.00	....	45.00mm	40.00t	45.50pp	43.00*	71.00t	56.30b	60.00rr
LIME, in paper, Hyd. fin.	"	42.50hh	35.80	38.28mm	42.00§	1.00aall	29.20jmm	32.75ptt	43.58	48.00p	38.00mm	36.26	38.00nnll	50.00bbe	48.00p	40.00p	40.00mmp	30.00t	1.00aapp	29.24	52.00bbt	39.00	34.00mm
" " ' Com hyd.	"	35.50hh	23.40	20.87mm	34.00§	0.90alaa	29.20jmm	28.00ptt	25.32	44.00p	30.00mm	34.26	38.00nnll	40.00bbe	40.00p	38.00p	24.50	26.00t	0.80aapp	29.24	38.00bbt	22.00	36.40mm
" " ' pulverized	"		....	26.33gmm	....	....	29.20jmm	....	28.00	46.00p	40.00mm	29.76	39.00nnll	52.00bbde	....	....	27.50	34.00t	1.35zaapp	31.74	1.30mbbt	13.25	34.75mm

•§ F.o.b. yard. •* F.o.b. plant Stockton. •† F.o.b. yard Roxbury. •a Smooth. •b $4.50 del. •c 8 x 12 x 12 in.-6 cell. •d Pulverized hot. •c less 5% disc., 10th. •f 8 x 8 x 12. •g Lumps, $26.72. •h F.o.b. trucks, job site N.Y.C. •i 60 lb sacks. •j Truck load or over. •k $1.00 discount per M, 10 days. •m Per bb. 180 lb. processed. •n 7¾ x 7¾ x 12. •o Mason's double hydrated pressure. •p Truck lots. •q Provincial and Municipal tax extra (6%). •r Not used: earthquake danger. •s 8 x 16 x 12. •t less 2% disc., cash. •u Incl. Federal tax. •v Sand lime. •w 5 x 8 x 12. •x dumped. •y Chi common. •z Pebble; 80 lb sack. •aa 50 lb sack. •bb LCL. •dd 6 x 12 x 12. •ff 80% common. •gg Smooth. •hh less 25¢ disc., cash. •ii F.o.b. plant. •jj rough: smooth; $40. •kk 3½ x 11½ x 11½. •ll less 2% disc. 10th. •mm less 2%, 10 days. •nn F.o.b., L. A. •oo less 2%, 30 days. •pp add 2% sales tax. •qq 8 x 5½ x 11½. •rr 2½% disc., 10 days. •ss 5% disc., 10 days. •tt less 2% disc., 15th. •uu less 50¢/M, 10 days. •vv 4000 pcs. and over. •ww Now manufactured in perodic instead of tunnel kiln.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

Item	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis K	San Francisco	Seattle	Montreal	Toronto
LEAD, red, dry	CWT	$14.75/15.10ggJO	$17.50pp	$26.00†J	$24.95†oomm	$15.25rjqqpp	$15.25†JO	$25.65†	$22.50	$23.85n	$15.95r	$26.90ggool	$16.25yy	$16.25N	$23.00Jpp	$14.75ocO	$14.75mmO	$21.50mggJ	$25.65†m	$26.70mm	$13.35HO	$19.45O	$13.95
White, in oil	"	24.00ggJ	24.00	29.00†J	26.90†mmm	24.00†J	24.00†J	26.90†	23.50M	24.00	24.00rr	25.65	22.00	21.50kk	24.00J	29.75	19.00mm	24.00J	26.90	29.90mm	24.00H	26.00wtt	20.85
READY-MIXED PAINT																							
Graphite b	gal	....	3.00	3.90J	....	....	....	3.16ggP	......	3.70	....mm	3.99	3.30	....	....	....	3.35mm	2.20#EJ	....	3.20mm	....	5.52Dfft	5.15J
Aluminum	"	4.10	4.40	3.40J	....	....	....	3.27zzgg	3.25B	5.10	....mm	3.43	4.50n	....	....	....	3.90mm	2.25#FJ	....	4.30mm	4.19ceffJ	6.55xff	6.18J
Ferric Oxide	"	3.31	3.50	....	....	....	....	4.20qgg	......	......	....mm	3.01	4.20n	....	....	....	3.65mm	2.25#GJ	....	3.50mm	....	5.10kfft	5.95J
ROOFING SUPPLIES	square	2.90kk	3.06	2.95†mm	3.55q	3.45ukk	2.99mm	2.85q	3.00u	2.94	2.85mm	3.00mm	3.40nkk	2.85kk	$2.78	2.99xx	......	2.90sH	2.99iismm	2.87mm	3.70ccH	5.40	3.50
Rolls, slate surf	CWT	2.20kk	3.67	2.17ii†mm	2.60q	2.75okk	2.19mm	2.10o	3.00o	2.25o	2.10ommll	2.50omm	2.40njkk	2.10hikk	1.98	2.19xxo	2.65	2.15sH	2.19hhK	1.72aaiimm	3.06hccH	4.65f	2.40aac
Asphalt felt	"	2.85kk	4.04	3.17ii†mm	3.04q	3.15okk	2.64omm	2.55o	3.00o	2.80o	2.55ommll	2.50omm	......	2.55bikk	2.85	2.64o	1.81	2.15H	2.64hhK	2.59mm	....	4.65f	2.40o
Asphalt coating	gal.	0.67kk	0.50	0.76ffmm	0.55q	48.00bbkk	0.56ymm	0.41y	0.47O	0.50f	0.56ffmm	0.55y	0.75nykk	0.52ikk	0.68	0.52z	0.74	0.56H	0.58yK	0.46jj	0.59cc	1.60	0.70j
tar pitch	ton	65.35kk	54.00	48.00eemm	60.00q	57.70†kk	57.96Hmm	49.00gg	66.00hh	50.00	49.00mm	....	s.....	50.00rkk	45.50	49.00*	49.00	55.00H	57.60K	54.00	....	4.40uu	50.00A

•† Delivered. • Note: Red lead in oil 50% higher than white lead in oil. •* Aver. wt. approx. 425 to 550 lb drums. •a Red lead prices change frequently due to pig lead price changes. •b U.S. War Dept. Spec. 3-49A. •c ASTM Spec. D266-31. •d 80% minimum ferric oxide. •e Per 108 sf roll. •f Per 432 sq ft. •g F.o.b. yard Roxbury. •h Per roll, 65 lb. •i Net carload prices, Minneapolis and vicinity. •j 45 gal containers. •k Over 80% ferric oxide. •l Not used. •m 100 lb keg. •n F.o.b. city. •o Per 60 lb roll. •p 6-drum, 50 gal each. •q Per 90-lb roll. •r F.o.b. factory, Chicago. •s Truckload. •t Incl. Federal tax. •u Per 90-lb square. •v Per ton. •x Ready-mixed. •y 55-gal container. •z Drums. •aa 15 lb. •bb Roofers coating and cement. •cc LCL, truck delivery. •ee Asphalt pitch in 100 lb package. •ff 5-ga drums. •gg F.o.b. factory. •hh Incl. freight. •ii Per 324 sf roll. •jj Asbestos roof coating. •kk less 2% disc., 10th. •mm less 2% disc., 10 days. •oo 100 lb bbls. •pp 50 or 100 lb bags. •qq 500 lbs or more. •rr F.o.b. plant, Detroit. •ss 50 lb bbls. •tt 25 lb kegs. •uu 250 lb bbls. •xx Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. •yy Sept. revised to $12.00. •zz Sept. revised to $2.80. •A 400 lb barrels. •B ASTM Spec. D962-49. •C 95%. •D Std. black. •# Milt. spec.: •E TTP27; •F TTY81; •G TTP31. •H less 2% disc., cash. •I Per 100 lb. •J less 1% disc., 10 days. •K add 2% sales tax. •L CL. •M 1 ton or more. •N under 500 lbs, add $1. •O 50 lb. bag.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS

Item	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louisuu	San Francisco	Seattle	Montreal	Toronto
PLASTER, neat	ton	$33.00ss	$24.00	$37.00ss	$26.00	$1.45bbtt	$24.95*ss	$29.00*ss	$34.50	$29.00	$28.00ss	$30.00	$28.00tt	$36.00F	$34.00	$27.00	$27.00	$30.00nn	$30.00	$29.50ss	$42.40nn	$22.60h	$0.70bb
gauging	"	45.00ss	35.70	43.00ss	30.00	1.45bbtt	24.95*	45.00N	34.50	29.00	28.00ss	35.00	29.00tt	36.00F	48.00	35.00	33.00ss	31.00nn	42.00	30.50ss	45.60nn	35.60h	1.25bb
VERMICULITE																							
Home insul. pellets	4 cf bag	1.65sss	0.95	1.55ss	1.40	1.55	1.75*ss	1.14ss	1.05	1.63	1.27ss	1.19E	1.25	1.65tt	1.32P	1.35	1.40ss	1.25nn	1.50	1.38ss	1.55nn	1.25h	1.47bb
plaster agg.	"	1.65sss	....	1.55ss	1.40	1.60	1.75*ss	1.16ss	1.21	1.40	1.31ss	1.21E	1.20ktt	1.80F	1.23P	1.38	1.25ss	1.30nn	1.60	1.38ss	1.35knn	1.40h	1.43bb
concrete agg. treated	"	1.85sss	....	1.60ss	1.40	1.60	1.85*ss	1.24ss	1.37	1.50l	1.40ss	1.29E	1.45	1.95Fl	1.40P	1.50	1.45ss	1.40mm	1.65	1.50ss	1.85lnn	1.60h	1.66bb
PERLITE, plaster agg.	"	1.65ss	1.15	1.27ss	1.55ss	1.60	1.75ss	1.45ss	1.21	1.50ss	1.45kii	1.21	1.16	1.40S	1.15P	1.45	1.05ss	1.40nn	1.50	1.38oss	1.50k	1.15v	1.14Q
concrete agg. untreat.	"	1.65ss	1.55	1.27ssl	1.55ss	1.60	1.75ss	1.45ss	1.32	1.60ss	1.50kii	....	1.26	1.50S	1.15P	1.40	1.05qqss	1.40nn	1.60	1.58oss	....	1.15v	....
BUILDING SHEET																							
Alum. flat, .100"	lb	0.469noo	0.462	0.459M	0.474	0.564x	0.469	0.459aa	0.469	0.479	0.475a	0.463	0.459	0.469	0.469	0.489aT	0.479	0.475	0.479	0.575	0.50D	43.95AH	0.4375
corr. roof, .032"	sheet	27.17nY	0.451r	9.66K	25.07AAp	33.43p	9.35	25.07p	0.484r	10.89	10.35a	24.66ggyyp	8.772Z	10.09	33.43	0.2507aXAA	10.98	10.39	9.18	10.83	10.75D	12.10H	26.00ap
Stainless steel, 20 ga	CWT	64.44nxx	63.00	64.50K	64.42*ddxx	64.15ee	61.00xx	63.33ooxx	64.09	65.32gg	63.00axx*	67.50E	67.77	63.61GR	63.00Y	64.08a	63.71	63.00	63.39Kmmgg	65.00K	54.02D	65.75H	73.74
28ga	"	72.69nxx	71.25	73.00K	72.67dd	72.40ee	71.25xx	71.58ooxx	72.34	73.57gg	71.25axx*	76.25E	73.27	69.61ffG	83.50Y	73.33	71.96	74.50pp	71.64ygg	77.25K	73.27D	....	86.52

•‡ trucklots, delivered •† fob warehouse. •* fob city. •a delivered. •b ½" O.D. •c ⅝" O.D. •d per sf. •e 34" x 60" sheet. •f per 100 ft. •g 5 tons & up: cold roll, anneal & pickled 2B finish. •h incl. Federal tax. •i add 25¢ for pint of additive. •j 1100 & 3003 alloy, mill finish. •k bag of 3 cu ft. • treated with air entraining agent. •m 2-10M ft. •n fob mill fr equalized with nearest stocking competitor. •o 250 sacks or more. •p 100 sq ft. •r per lb. •s 30 lb bag. •t 36" x 108";-10.81 lb/sh; 48" x 144"; 21.7 lb/sh. •u 19.31 lb/sh. •v fob plant. •w 48 x 144" •x 0.11"th. •y 27 gauge •aa 16M lb & up. •bb Per 50 lb bag. •dd add $1.00 cwt boxing. •ee 4 tons & up. •gg add $2/cwt boxing; $0.75/cwt on skids. •hh Theoretical wt for 48" x 96"; 60.4-lb per sh. •ii 300-bag lots •ll 100-lb bag •mm Theoretical wt: 19.7-lb per sh •nn 2% cash •oo skid packed. •pp type 304 •qq Philadelphia and suburbs. •rr less 2% disc. 15 days. •ss less 2% disc. 10 days. •tt less 2% disc. 10th. •uu add 2% sales tax. •vv Type N. •xx less ½% disc. 10 days. •yy .021 ga. •zz .061" th. •A Per 100 lb. •C 15M lb. •D less ½% for cash. •E Quantity differential. •F less 5% disc. 10th. •G less ½% disc. 10th. •H Fed. tax exempt. •K less ½%, 10 days. •L 5% disc. 30 days. •M 3003: .452 for 1100. •N less 2%, 15th mo. •O less $2, cash & carry. •P less 2%, 15 days. •Q per ton. •R revised. •S add .10/bag under 200 bags. •T 5000# quantity on 4000# skids. •U 30 Msf quantity; $0.245 in 10 Msf quantity. •X per sq ft. •Y per sheet. •Z 6,000 lb or over. •AA 30,000 sf or over.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

NEW ENGLAND

BUILDINGS—BA

▲ **R. I., Portsmouth**—BA 6/2—Sisters of Our Lady of Providence, c/o Most Rev. Russell J. McVinney, DD-Bishop of Providence, 34 Fenner St. (selected list of bidders), Mother of Hope NOVITIATE, West Main Rd. $1,500,000. William M. O'Rourke, 90 Union St., Warren, archt. CD 1/30/61.

▲ **Mass., Amherst**—BA 6/9—Commonwealth Mass., Dpt. Educ., Div. Bldg. Constr., 38 Chauncy St., Boston, Proj. U-59-2, Contr. 1, NATURAL RESOURCES BLDG., University of Massachusetts. $1,596,577. Plans deposit $100. M. A. Dyer Co., 24 School St., Boston, archt. CD 1/20/59.

BUILDINGS—SLC

▲ **Mass., Worcester**—Memorial Hospital, 119 Belmont St., soon lets contract HOSPITAL ADDN., ALTERATIONS, Kendall St. $1,500,000. Perkins & Will, 55 Church St., White Plains, N. Y., archts. G. Adolph Johnson, Inc., 82 Foster St., assoc. archt. Garfinkel & Marenberg, 100 W. 42 St., New York, N. Y., engrs. CD 5/2/61.

HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy, Comm., Augusta, BRIDGE,
Ellis C. Snodgrass, Inc., 465 Congress St., Portland, Me., CA **$1,568,003** (8 bidders) Passagassawaukeag River Bridge, Belfast, Rte. US 1, Proj. BU-026-2(1), Contr. 1, Waldo Co. BA 5/10. CD 4/18/61.

▲† **Electronic & Missile Facilities, Inc.**, 2 LaFayette St., New York 7, N. Y., LB **$1,776,000** (14 bidders), AIR ROUTE TRAFFIC CONTROL CENTER, Nashua By-pass-Dunstable and E. Dunstable Rds., NASHUA, N. H. Federal Aviation Agency, Federal Bldg. No. 347, New York International Airport, Jamaica, N. Y. BA 5/15/61. CD 4/5/61.

▲ **VERMONT**—State Hy. Dpt., State House, Montpelier, Bids opened 5/12, ROAD,
Fabi & Sons, Ltd., 800 King St., Sherbrooke, P. Q., Canada, LB **$1,545,718**, est. $640,000, highway and two bridges, Interstate Rte. No. 91, Proj. 1-91-3, Derby. CD 4/10/61.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **Pa., West Chester**—BA 6/1—West Goshen Sewer Authority, Route 202, SECONDARY SEWER PLANT, etc. $2,225.000. Extended date. Glace & Glace, 2771 Paxton St., Harrisburg, engrs. CD 5/3/61.

▲ **New York**—BA 6/13—President Queens Boro, Boro Hall, 228-120-55 Queens Blvd., Kew Gardens, 24, GRADING, PAVING, constr. grade separation structures, retaining walls, curbs, walks, drainage facilities, electrical sys. and landscaping Brooklyn-Queens Expressway (Connecting Hy.) from Woodside Ave. to 64 St., exclusive of Long Island RR Bridge, Queens Boro. Plans deposit $100. CD 3/23/60.

BUILDINGS—BA

▲ **Md., Baltimore**—BA 6/1—Johns Hopkins Hospital, Broadway and Monument St., (selected list bidders) Children's MEDICAL and SURGICAL CENTER. $6,000,000. Jas. R. Edmunds Jr., 1025 St. Paul St., Zone 2, archt. CD 12/17/58.

▲ **N. J., New Brunswick**—BA 6/1—Office of the Vice President and Treasurer, Room 101, Queens Bldg., Rutgers, State University, Contr. 1, general constr., Contr. 2, structural steel, misc. iron work, Contr. 3, heating and ventilating work. Contr. 4, plumbing work, Contr. 5, electrical work, STADIUM FIELD HOUSE ADDN. for Rutgers, The State University. Plans deposit $50. Woerner & Woerner, The Feher Bldg., 103 Bayard St., archts. CD 10/1/45.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 5/11, ROAD,
George M. Brewster & Son, 275 West Fort Lee Rd., Bogota, N. J., LB **$3,119,916**, (5 bidders), preparing roadbed for future constr. of Interstate Rte. 95 and future connection with New Jersey Turnpike and Rte. 46, Ridgefield Park, Bergen Co. CD 4/20/61.

BUILDINGS—LB & CA

▲ **John Kennedy & Co., Inc.**, 205 E. 42 St., New York 17, N. Y., CA Est. **$4,500,000**, 1,800 student Bishop Ford HIGH SCHOOL, Prospect Park West and 20 St., BROOKLYN, N. Y. Diocese of Brooklyn, 191 Joralemon St., Brooklyn 2, N. Y. BA 5/9. CD 4/27/61.

▲ **V. B. Constr. Co., Inc.**, 157 Sunnyfield St., Scarsdale, N. Y., LB **$2,643,559**, (11 bidders), general contract DORMITORIES and MESS HALL for Maritime College, Fort Schuyler, NEW YORK, N. Y. Dormitory Authority of New York State, Normanskill Blvd., Elsmere, N. Y. BA 5/9. CD 5/2/61.

▲ **Sheppard-Pollak, Inc.**, 18 E. 48 St., New York 17, N. Y., CA Est. **$2,944,200**, 19 story, 180 unit Monterey Towers APARTMENT, Monterey Ave., Lafontaine Ave., E. 180 St., E. 181 St., Bronx Boro, NEW YORK, N. Y. John Pollak, 18 E. 48 St., New York 17, N. Y. CD 3/29/61.

▲ **Robert Glenn, Inc.**, 101 Park Ave., New York 17, N. Y., CA Est. **$2,500,000**, 3 story 125,000 sq. ft. DEPT. STORE ADDN., incl. 3,000 sq. ft. AUDITORIUM, 220 Main St., WHITE PLAINS, N. Y. Macy's New York, Herald Square, New York 1, N. Y. Lathrop Douglass, 518 Fifth Ave., New York 18, N. Y., archt.

▲ **Dimar Bros.**, 1330 Main Ave., Clifton, N. J., and **South Jersey Land Co**, Berkeley Heights, N. J., CA est. **$5,200,000**, 500 addnl. HOUSES, and SWIMMING POOL, Sloop Creek Rd., BAYVILLE, N. J. Hydrocarbon Realty Development Co., 24th W. 58th St., New York, N. Y. Serge Padiukow, 230 Main St., Toms River, N. J., and Paul West, 911 N. Main St., Toms River, N. J., archts.

▲ **Hand-Sum Homes**, 10 South Harrison St., East Orange, N. J., Owner Builds, **$2,000,000**, 85 HOUSES, Briarwood Dr., BERKELEY HEIGHTS, N. J. Rotwein & Blake, 1018 Stuyvesant Ave., Union, N. J., archts.

▲ **Vincent J. Verra**, 351 Turnabout Circle, Mountainside, N. J., Owner Builds, **$1,750,000**, 55 HOUSES, Lake Avenue Section, CLARK, N. J. Benoist & Goldbert, 5 Valentine St., Monmouth Beach, N. J., archts.

▲ **William L. Blanchard Co.**, 45 Poinier St., Newark, N. J., CA Est. **$2,500,000**, DEPARTMENT STORE, in Delaware Twp., HADDONFIELD, N. J. L. Bamberger & Co., 131 Market St., Newark, N. J. Abbott Merkt & Co., 630 3rd Ave., New York, N. Y., archts.

▲ **B. Bornstein & Son**, 2027 Arch St., Phila., Pa., CA **$1,587,500**, general contract Wissohickon SENIOR HIGH SCHOOL, AMBLER, PA. Ambler Joint School Authority, Ambler, Pa. BA 4/27/61. CD 4/13/61.

▲ **Fleming Co.**, Wynnewood, Pa., CA **$1,589,177**, general contract SENIOR HIGH SCHOOL, BERWYN, PA. Paoli Area School Authority, Berwyn, Pa. BA 3/39/61. CD 4/10/61, under LB.

▲ **Feinstein & Cardonick**, c/o 1135 Englewood St., Phila., Pa., Owner Builds, **$3,500,000.** $1,750,000 1st year, two years to complete, 226 RESIDENTIAL DEVELOPMENTS, Rising Sun Ave. and Phawn St., PHILA., PA.

▲ **Nason & Cullen, Inc.**, 6525 Vine St., Phila., Pa., CA **$2,190,000**, IN-PATIENT HOSPITAL, PHILA., PA. St. Christopher's Hospital, 2600 N. Lawrence St., Phila., Pa. BA 4/18/61. CD 4/24/61, under LB.

▲ **Mellon-Stuart Co.**, 210 E. Parkway, Pittsburgh, Pa., CA Est. **$2,250,000**, 9 story, brick, Bristol APARTMENT and GARAGE, N. Bellefield between 5th Ave. and Bayard St., PITTSBURGH, PA. Sponsors, Inc., c/o Douden & Associates, archts., Clark Bldg., Pittsburgh, Pa.

▲ **One Township Line, Inc.**, 6758 Market St., Upper Darby, Pa., Owner Builds, **$1,500,000**, APARTMENT, Township Line, UPPER DARBY, PA. Raymond Di Paola, Media, Pa., archt.

SOUTH

HEAVY CONSTRUCTION—BA

▲ **Va., Newport News**—BA 6/14—City Council Chamber, Municipal Bldg., 108 Main St.,
Contract 1, general contract, rolled fill DIASCUND DAM, approx. 5,670 ft. long and 37 ft. high, PUMPING STATION and appurtenances for Diascund Water Project, approx. 15 mi. northwest of Williamsburg, Plans deposit $30.
Contract 2, mechanical equipment, two VERTICAL TURBINE PUMPING UNITS, pipe and fitting; sluice gates, valves, well screening equipment, metering equipment and air compressor. Plans deposit $20.
Contract 3, electrical work, high voltage SWITCHGEAR for reduced voltage starting two 600 HP motors, low voltage switchgear and wiring for power, lighting and control systems, Plans deposit $20.
Contract 5, transmission main, rein.-con. PRESSURE PIPE LINE from Station 0 plus 00 to Station 510 plus 10, approx. 10 mi. along northerly side of Virginia Electric Power Company (VEPCO) right of way terminating approx. 750 ft. easterly from Rte. 658. Plans deposit $30. Malcolm Pirnie Engineers, 25 West 43rd St., New York 36, N. Y., engrs. CD 11/10/59.

▲† **West Virginia**—BA 6/20—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., contr. LOCK, Opekiska Lock and Dam, Monongahela River, ENG-36-058-61-38, $10,000,000. Plans deposit $10. CD 11/10/60.

▲† **Fla., Miami**—BA 6/23—Federal Aviation Agency, Second Regional Office, Box 1689, Fort Worth, Tex., Air Route TRAFFIC CONTROL CENTER BLDG., NW of Miami International Airport, at Palmetto By-Pass and NW 58 St., Proposal 2-61-156. $1,750,000. Extended date. Steward-Skinner & Assoc., DuPont Plaza Center, archts., CD 5/9/61.

BUILDINGS—BA

▲ **Tenn., Nashville**—BA 6/14—General Shoe Corp., 111 7th Ave. N., 490,000 sq. ft., SHOE MFG. PLANT, Over $2,500,000. Plans deposit $800. John Charles Wheeler, 2000 Warfield Drive, archt. I. C. Thomasson & Assocs., 809 16th Ave. S., engrs. CD 12/23/58.

▲ **La., New Orleans**—BA 6/15—Touro Infirmary, 3516 Prytania St., rein.-con. INFIRMARY ALTERATIONS, ADDNS. $3,500,000. Curtis & Davis, 2475 Canal St., archts. CD 4/5/61.

▲† **Fla., Mayport**—BA 6/22—Southeast Division-Bureau Yards & Docks, Bldg. 13, U. S. Naval Base, Charleston, S. C., 540 units CAPEHART HOUSING PROJECT, U. S. Naval Station, NBy-(CH)-37375, Spec. 37275/61. Plans deposit $75. CD 11/15/60.

▲ **N. C., Winston-Salem**—BA 7/6—Bd. Comrs., Forsyth Co. Courthouse, 10 story, 338,068 sq. ft., Forsyth General HOSPITAL, $10,000,000. Extended date. Lashmit, James, Brown & Pollock, 865 W. 4½ St., archts. CD 4/13/61.

BUILDINGS—SLC

▲ **Ala., Gadsden**—Baptist Memorial Hospital, 1137 7th Ave., soon lets contract HOSPITAL, $2,400,000. Charles H. McCauley, 1917 5th Ave. S., Birmingham, archt. CD 5/9/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Glenn Constr. Co.**, 501 E. Morehead St., Charlotte, N. C., CA **$1,552,087**, general contract SEWAGE TREATMENT PLANT, ALBEMARLE, N. C. City, City Hall, Albemarle, N. C. BA 4/12/61. CD 4/20/61, under LB.

▲ **KENTUCKY and OHIO**—Commonwealth of Ky., Dpt. Hys., Frankfort, Ky., bids opened 5/12, BRIDGE,
U. S. Steel Corp., Rm. 3004, 525 Wiliam Penn Pl., Pittsburgh, Pa., LB **$3,877,892**, (5 bidders), bridge (superstructure) over Ohio River between Covington, Ky. and Cincinnati, O., 0.328 mi. EI 75-8 (11) 190, SP 59-315, Kenton Co., Ky. CD 4/25/61.

BUILDINGS—LB & CA

▲ **Allen Bros. & O'Hara, Inc.**, 3742 Lamar Ave., Memphis, Tenn., CA Est. **$2,000,000**, 5 story, 46 x 330 ft. MOTEL, Kanawha Blvd., CHARLESTON, W. VA. Stanton Enterprises, c/o contractor.

▲ **D. H. Foster, Paul J. Kortsh & Jack Williams**, 3836 Central Ave., St. Petersburg, Fla., CA **$2,088,777**, 250 unit HOUSING, Fla. 41-1 and 41-2, FORT PIERCE, FLA. Fort Pierce Housing Auth., 435 North 7th St., Fort Pierce, Fla. BA 5/3/61. CD 5/9/61, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲† **Michigan**—BA 6/14—U. S. Eng., 1101 Washington Blvd., Detroit, Zone 26, DREDGING CHANNEL between Mackinac Island and Round Island, Straits of Mackinac, CIVENG-20-064-61-65. Under $2,000,000. Plans deposit $2. CD 4/20/61.

BUILDINGS—BA

▲ **Ill., Chicago**—BA 6/1—University of Chicago, 5801 Ellis Ave., 6 story, Phillip D. Armour RESEARCH BLDG., 58th St. and Ellis Ave. $3,000,000. Schmidt, Garden & Erickson, 104 S. Michigan Ave., Zone 3, archts. CD 7/31/59.

▲ **O., Cleveland**—BA 6/7—Sheraton Corp., 470 Atlantic Ave., Boston, Mass., (selected list of bidders) BALLROOM, Sheraton Hotel. $1,500,000. Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, Mass., archts. CD 11/11/59.

▲ **O., Cleveland**—BA 6/8—Addressograph-Multigraph Corp., 1200 Babbitt Rd., Zone 32, 301,000 sq. ft., chrome plating PLANT ADDN., etc., $3,500,000. Dalton-Dalton Associates, The Arcade, Zone 14, archts. CD 2/10/60.

▲ **O., Columbus**—BA 6/8—Columbus Metropolitan Housing Auth., 425 W. Rich St., Zone 22, 11 story low rent APARTMENT and 1 story Senior Citizens RECREATION BLDG., Ohio 1-6. Plans deposit $100. Inscho, Brand & Inscho, 60 E. Broad St., Zone 15, archts. CD 3/21/61.

▲ **Wis., Madison**—BA 6/8—Regents of the University of Wisconsin, GENETICS BLDG. $1,800,000. Plans deposit $50. Siberz, Purcell & Cuthbert, 1920 Monroe St., archts.

▲ **O., Chillicothe**—BA 6/20—Bd. Educ., Chillicothe, HIGH SCHOOL. $2,500,000. CD 11/19/57.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Comn., State Dpts. Bldg., Columbus, Zone 15, ROADS,
O.—**Bates & Rogers Constr. Corp.**, 600 W. Jackson Blvd., Chicago, Ill., CA **$1,056,486**, Type T 35 on B 19 and structure 1.465 mi. State Rte. 528, Section 1.24, S 34 (4) Madison Twps., Proj. 197, Lake Co.; CA **$844,349**, Type T 34 on B 19 and structure, 0.567 mi. US Rte. 25, Section 7.12, I 75-1(45)46, Miami Twp., Proj. 203, Montgomery Co.;
O.—**Silvestri Bros.**, 713 Andrews Ave., Youngstown, O., CA **$821,007**, Type T 71 and structures, 0.682 mi. S. R. 7, Section 14.35, I 680-9(5)224, City of Youngstown, Proj. 202, Mahoning Co.;
O.—**Frank Mashuda Companies, Associated**, 5556 W. Roosevelt Dr., Milwaukee, Wis., CA **$3,187,253**, Type T 71 and structure, 3.633 mi. US Rte. 40, Sections 5.58, 5.84 (Parts Nos. 1 and 2) S-SG-1338(1), I 70-7(8)177, Part No. 1, Cambridge Twps., Part No. 2, Cambridge Twp. Proj. 196, Guernsey Co. Grand total $5,889,095. BA 4/25/61. CD 5/5/61 under LB.

▲ **Boam Co., Inc.**, 3144 W. Eight Mile Rd., Livonia, Mich., and **Rocco Ferrare & Co.**, 30105 W. Eight Mile Rd., Detroit, Mich., CA **$4,440,566,** Red Run DIVERSION CONDUIT and Mahoning River INTERCEPTOR SEWER, WARREN, O., City, City Hall, Warren, O. BA 3/16/61, CA 5/5/61. CD 3/22/61, under LB.

▲ **WISCONSIN**—State Hy. Dpt., Rm. 534, State Office Bldg., Madison, BRIDGES,

Wis.—**A. R. Coffeen Co.**, P.O. Box 135, Hartford, Wis., CA **$105,167**, Structures B 13-176 and B 13-177 0.025 mi. Contract 4 Madison Janesville Maple Grove Rd., South County Line Section on 190, Contract 1146, Dane Co.; CA **$151,250,** Structures B 13-203 and B 13-135 0.029 mi. Contract 2 USH 151, IH 90 Rd. on STH 30, Contract 1147, Dane Co.;

Wis.—**Warden & Perrenoud, Inc.**, 3048 Midway St., Eau Claire, Wis., CA **$93,697**, grading, subbase base course, Structure B 47-33, Rush River Bridge and approach, on STH 29, Contract 1, Contract 1151, Pierce Co.;

Wis.—**L. G. Arnold, Inc.**, P.O. Box 228, Eau Claire, Wis., CA **$1,771,064**, Structure B 40-115 0.278 mi. Contract 1, North-South Expressway CMSTP and P RR Yard overpass, Milwaukee and Glendale, Contract 1149, Milwaukee Co.;

Wis.—**Bridge Builders, Inc.**, 1225 Tower Ave., Superior, Wis., CA **$773,590,** Structures B 16-10, B 16-11 and B 16-12, Contract 1, Bay St. overpass and Hill Ave. overpass, USH 53, Superior, Wis., Contract 1153, Douglas Co.;

Wis.—**Harold B. Janke**, Fredonia, Wis., CA **$152,723,** Structures, Contract 3, Madison-Janesville Rd., Maple Grove Rd.., South County Line Section, on 190, Contract 1145, Dane Co. Grand total $3,047,490. BA 5/9/61. CD 4/11/61.

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing, ROADS,

Mich.—**C. J. Rogers**, 148346 Grand River, Detroit 27, Mich., **Cooke Contracting Co.**, 1116 Penobscot Bldg., Detroit 26, Mich. and **Jutton-Kelly**, 13240 Alber Dr., Dearborn, Mich., CA **$3,196,206**, ½ mi. Chrysler Freeway from Alexandrine north to Warren incl. bridges at Warren and Canfield and Utility alterations, Detroit, Wayne Co.;

Mich.—**O. E. Gooding Co.**, 5800 Cherry Hill Rd., Ypsilanti, Mich., CA **$809,542**, 12.4 mi. modernization on M-53 from Imlay City to Burnside incl. grading, drainage structures, wid'n. from 20 to 24 ft. and paving, Lapeer Co. BA 4/18. CD 4/25/61, under LB.

BUILDINGS—LB & CA

▲ **English Development**, 9140 Brecksville Rd., Brecksville, O., Owner Builds, **$5,000,000,** twenty-one 2 story 304-unio APARTMENTS, Brecksville Rd. between Farview and Whitewood Rds., swimming pool, 32 acre site, BRECKSVILLE, O. Andonian & Ruzsa, The Arcade, Cleveland, O., archts.

▲ **Austin Co.**, 2650 Mayfield St., Cleveland, O., CA Est. **$5,000,000,** design and construct 150,000 sq. ft. Paper Box Mfg. PLANT, Princeton Pike and Circle Freeway, CINCINNATI, O. Lord Baltimore Press, sub. International Paper Co., 425 Park Ave., New York, N. Y.

▲ **Dravo Corp.**, Neville Island, Pittsburgh, Pa., installing third 125,000 kw. GENERATING UNIT in Conesville Power Station, CONESVILLE, O. Columbus & Southern Ohio Electric Co., 217 N. Front St., Columbus, O. CD 10/12/60, under CA.

▲ **Living Homes, Inc.**, 13757 Cedar Rd., Cleveland Heights, O., Owner Builds, **$4,725,000,** 225 HOMES in Hometown Park, MENTOR, O.

▲ **J. L. Simmons Co.**, Inland Bldg., Indianapolis, Ind., CA Est. **$1,500,000,** general contract 3 story Jordan COLLEGE of MUSIC, North 3 corner 46th and Clarendon, INDIANAPOLIS, IND. Butler University, Indianapolis, Ind. McGuire & Shook, Compton, Richey & Assocs., I.S.T.A. Center, Indianapolis, Ind., archts. CD 1/15/59.

▲ **William E. Schweitzer & Co.**, 2207 Dodge Ave., Evanston, Ill., CA **$5,000,000,** TECHNOLOGY INSTITUTE ADDN., EVANSTON, ILL. Northwestern University, 619 Clark St., Evanston, Ill. BA 4/20/61, CA 5/3/61. CD 4/12/61.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago 2, Ill., CA **$3,000,000,** 10 story, 70x180 ft. OFFICE, Washington St. and Wacker Dr., CHICAGO, ILL. McCormick Willoughby Co., 77 W. Washington St., Chicago 2, Ill. CD 3/20/61.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Minn., Bloomington (P.O. Minneapolis)**—BA 6/13—Bd. Educ. Independent School Dist. No. 271, 3 story Penn JUNIOR HIGH SCHOOL, 8400 Penn Ave. S. $3,000,000. Armstrong & Schlichting, 4901 Olson Memorial Hy., Minneapolis, archts. K. M. Clark, 2815 Wayzata Blvd., Minneapolis, engr. CD 11/4/60.

BUILDINGS—SLC

▲ **Tex., Fort Worth**—Harris Hospital, 1300 W. Cannon St., soon lets contract 4 story, bsmnt., concrete frame, masonry, air-conditioned MATERNITY HOSPITAL, $5,000,000. Preston M. Geren, 1607 Fort Worth Natl. Bldg., archt. CD 4/21/61.

▲ **Tex., San Antonio**—Morris Kallison, 124 S. Flores St., soon lets contract 10 story, OFFICE, Cypress St., between Main Ave. and N. McCullough Ave., $2,000,000; parking garage, $250,000. Atlee B. & Rob. M.

(Continued on page 65)

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1 KW 115v DC
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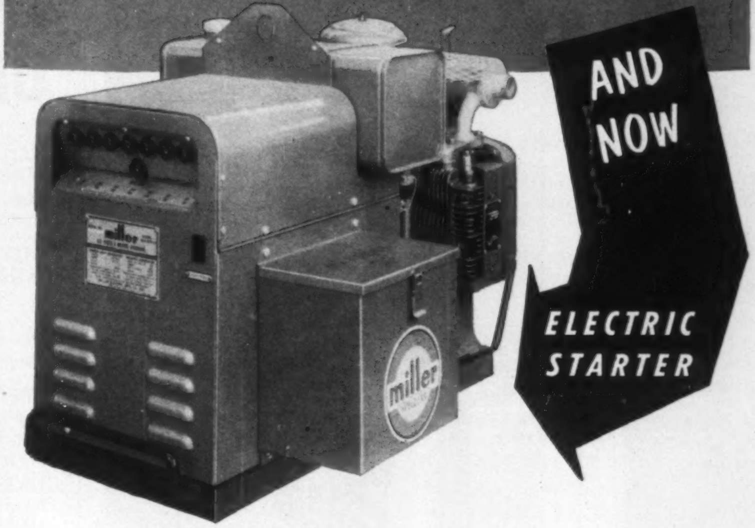

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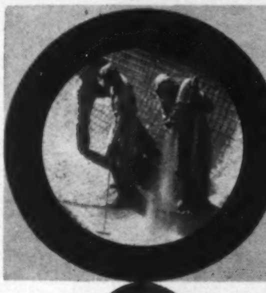

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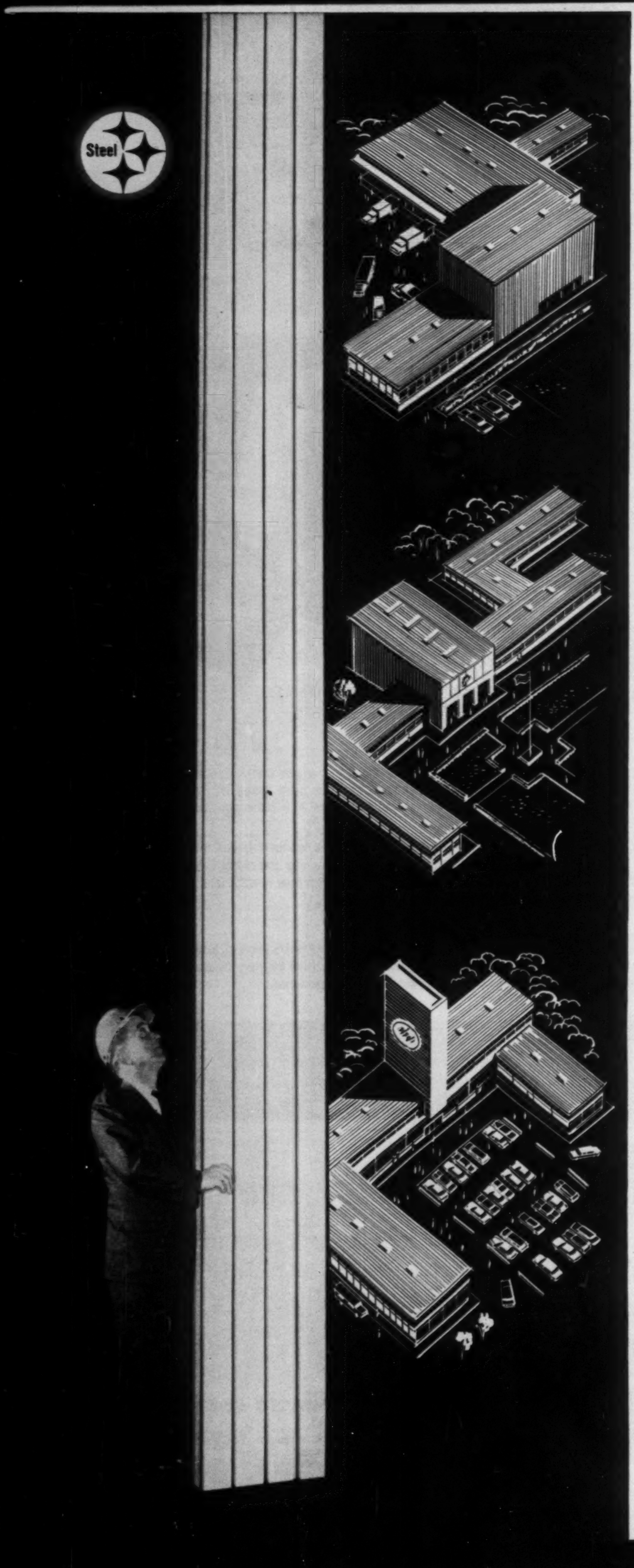

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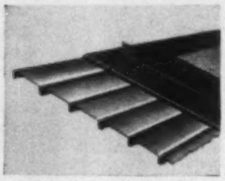

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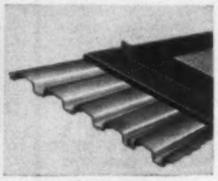

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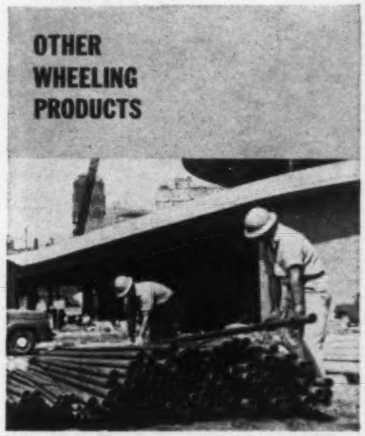

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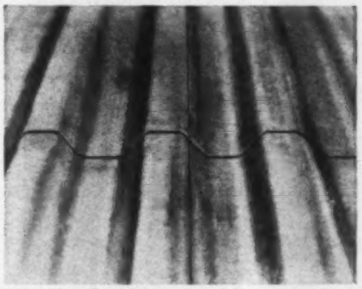

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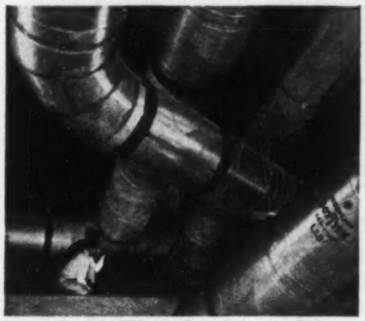

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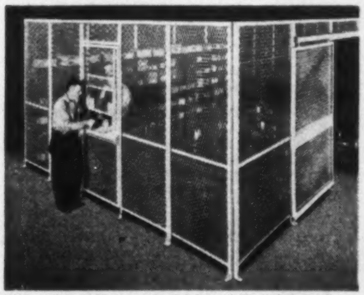

Wheeling Expanded Metal Partition Systems prevent pilferage... yet allow free passage of light, heat, air and moisture.

(Continued from page 63)

Ayres, 342 W. Woodlawn Ave., archts. Reynolds & Morgan, 1003 Insurance Bldg., and Martin E. Staley, No. 31, Chandler Bldg., engrs. CD 5/2/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Brown & Root, Inc.,** P.O. Box 3, Houston, Tex., LB **$1,653,766,** est. $1,440,000, UNDERPASSES, on Main and Fannin Sts., at Holcombe Blvd., HOUSTON, TEX. City, Dpt. P. Wks., City Hall, Houston, Tex. BA 5/10/61. CD 7/10/59.

▲† **M. T. Reed Constr. Co.,** 162 Millsaps Ave., Jackson, Miss., and **Boyd Constr. Co.,** P.O. Box 822, Grenada, Miss., LB **$3,749,570,** (10 bidders), Two Rivers RESERVOIR PROJ., Rio Hondo, Roswell, Chaves Co., ENG-29-005-61-9B, NEW MEXICO. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. BA 5/9/61. CD 4/28/61.

BUILDINGS—LB & CA

▲ **Kraus-Anderson, Inc.,** 501 S. 8 St., Minneapolis, Minn., CA Est. **$2,000,000,** 165x200 ft. DEPARTMENT STORE, tract adjoining Brookdale Shopping Center, Hy. 100, Shingle Creek, 59 Ave. and Osseo Rd., BROOKLYN CENTER (MINNEAPOLIS P.O.), MINN. Sears, Roebuck & Co., 925 S. Holman Ave., Chicago, Ill. BA 4/13. CD 4/5/61.

▲ **Seminole Constr. Co.,** Osceola, Ark., Owner Builds, **$4,000,000,** 200 HOUSES, subdivision on State Hy. 140, OSCEOLA, ARK.

▲ **Owner,** c/o Jack Rich, 506 E. Broadway, West Memphis, Ark., Owner Builds, **$5,000,000,** 412 HOUSES, Holiday Gardens subdivision on Interstate Hy. 55, WEST MEMPHIS, ARK.

▲ **Mayers-Sanders,** 3407 San Fernando Rd., Los Angeles, Calif., CA **$4,386,000,** No. 2, 1,044 units ARMED SERVICE CAPEHART HOUSING, GRAND FORKS, N. D. Base Procurement Office, Grand Forks Air Force Base, Grand Forks, N. D. CD 5/8/61, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Calif., Long Beach**—BA 6/16—11th Naval Dist. P. Wks., 1220 Pacific Hy., San Diego, Zone 1, SUBSIDENCE REMEDIAL MEASURES, Increment No. 5, raise Pier 2, constr. quay wall, etc., Long Beach Naval Shipyard, Spec. 37887. $1,000,000-$2,500,000. CD 9/25/59.

▲ **Calif., Los Angeles**—BA 6/16—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 59, Unit 2, Central Business District STORM DRAIN. $2,500,000. CD 11/10/58.

HEAVY CONSTRUCTION—LB & CA

▲ **Howard P. Foley Co.,** 501 W 1st St., N. Salt Lake City, Utah, and **Jelco, Inc.,** 1919 WN Temple St., Salt Lake City, Utah, CA **$17,481,077,** 300 mi. 345,000 volt TRANSMISSION LINE, from Phoenix, Ariz. to Four Corners Power plant in New Mexico, ARIZONA-NEW MEXICO. Arizona Public Service Co., 50 S. 3 Ave., Phoenix, Ariz. CD 2/8/57.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 5/11, ROAD,

B. J. **Ukropina, Polich-Kral & Ukropina,** P.O Box 105, San Gabriel, Calif., LB **$3,861,104,** (4 bidders), grading, paving 2.4 mi. six and eight lane freewav on Golden State Freeway between 0.1 mi. west of Lankershim Blvd. and Osborne St. in Los Angeles, incl. 15 structures, Los Angeles Co. CD 4/5/61.

BUILDINGS—LB & CA

▲† **Nomellini Constr. Co. & F. P. Lathrop Constr. Co.,** 939 Marengo Rd., Stockton, Calif., CA **$4,949,000,** completion CAPEHART HOUSING, No. 2, BEALE AIR FORCE BASE, CALIF. Base Procurement Office, Beale Air Force Base, Calif. CD 4/21/61, under LB.

▲ **Pearl Harbor Heights Developers,** P.O. Box 455, Aiea, Oahu, Hawaii, Owner Builds, **$3,469,000,** (5 to 10 years to complete), Unit 11, 141 HOMES, streets, roads, imprvs., grading, levelling, Enchanted Hills Estate, AIEA, HAWAII. Hawaiian Pacific Industries, 914 Ala Moana Blvd., Honolulu, Hawaii, archts. W. K. Collins, Hawaiian Life Bdg., Kapiolani Blvd. Honolulu, Hawaii, engr.

▲ **Pearl Harbor Heights Developers,** P.O. Box 455, Aiea, Oahu, Hawaii, Owner Builds, **$4,208,390,** (5 to 10 years to complete), Unit 1, 238 HOMES, grading, levelling streets, roads, imprvs. Halawa Heights Estates, AIEA, HAWAII. Geo. Barrett (Hawaiian Pacific Industries), 914 Ala Moana Blvd., Honolulu, Hawaii, archt. Fred Pack Assocs., 931 University Ave., Honolulu, Hawaii, engrs.

CANADA

BUILDINGS—BA

▲ **Ont., Ottawa**—BA 5/31—The Royal Trust Co., 128 Wellington St., OFFICE, Albert and Metcalfe Sts. $2,000,000. Belcourt & Blair, J. W. Strutt, Auguste Martineau, Helmer & Morin, 30 The Driveway, Ottawa, archts. CD 4/11/61.

▲ **Ont., Toronto**—BA 6/1—Central Mortgage & Housing Corp., 650 Lawrence Ave. W., low rental 2 story HOUSING UNITS, 6 story APARTMENT, Scarlett Rd. $2,000,000. Plans deposit $100. Bregman & Hamann, 146 Bloor St. W., Toronto, archt for apartment. CD 11/18/60.

BUILDINGS—SLC

▲ **Labrador, Carol Lake**—Iron Ore Co. of Canada, 810 Cote de Liesse Rd., Montreal, Que., soon lets contract

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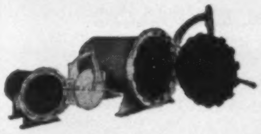

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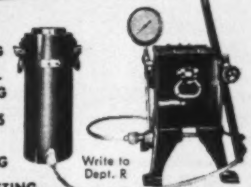

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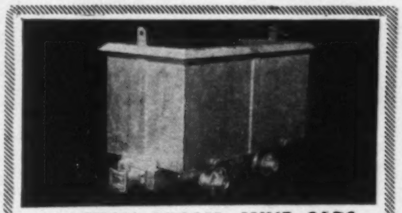

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CONCENTRATING MILL, part of iron ore beneficiating plant, Carol Lake Mining Development. $6,000,000. Canadian Bechtel Ltd., 5595 Pare St., Montreal, Que., engrs. CD 4/27/61.

▲ **Ont., Smiths Falls**—The Hershey Chocolate Corp., 19 E. Chocolate Ave., Hershey, Pa., U. S. A., soon lets contract, structural steel for CHOCOLATE PLANT, Lorne St. E., $7,000,000. Day & Zimmerman, 1700 Sansom St., Phila., Pa., U. S. A., project managers. Surveyor, Nenniger & Chenevert 1440 St. Catherine St. W., Montreal, Que., assocs engrs. CD 2/6/61.

BUILDINGS—LB & CA

▲ **Anglin-Norcross Western Ltd.**, 1157 Melville St., Vancouver, B. C., CA **$1,836,602**, 3 story, concrete frame Eric Hamber SECONDARY SCHOOL, incl. one double gymnasium, auditorium, cafeteria, library, administration offices, etc. Oak and 33rd St., VANCOUVER, B. C. Vancouver School Dist. No. 39, 1595 W. 10th St., Vancouver, B. C. BA 4/26/61, CA 5/8/61. CD 5/10/61, under LB.

▲ **Anglin Norcross Maritime Ltd.**, 892 Sherbrooke St., Montreal, Que., CA Total est. **$4,000,000**, 400,000 sq. ft. rein.-con. frame SHOPPING CENTER, Bayers and Mumford Rd., HALIFAX, N. S. Webb & Knapp (Canada) Ltd., 1010 St. Catherine St. W., Montreal, Que. BA 3/29/61. CD 3/22/61.

▲ **Leopold Sipolins**, 90 Juliana Rd., Toronto, Ont., Owner Builds, **$5,000,000**, APARTMENTS, DUPLEXES, Subdivision, Carling Ave. and Ottawa River (Britannia Park), OTTAWA, ONT.

▲ **Newman Bros. Ltd.**, 4A Clark St., Box 608, St. Catharines, Ont., CA **$2,630,810**, 6 story, rein.-con., frame, masonry, brick HOSPITAL WING, ST. CATHARINES, ONT. St. Catharines General Hospital, Bd. Governors, St. Catharines, Ont. BA 4/27/61. CD 4/14/61.

▲ **Anglin-Norcross Ontario Ltd.**, 224 Davenport Rd., Toronto, Ont., and **General Property & Investments Ltd.**, London, England, Owners Build, **$10,000,000.** 400,000 sq. ft. SHOPPING CENTRE, incl. precast screening, curtain wall constr., steel framing main bldg., glass panelling, stainless steel blades between panels circular bldg. Over Davisville subway yards, TORONTO, ONT. C. D. Carruthers & Wallace Consultants Ltd., 92 Yorkville St., Toronto, Ont., superstructure engrs. De Leuw Cather & Co. of Canada, 1491 Yonge St., Toronto, Ont., substructure engrs.

▲ **Carlington Investments Ltd.**, c/o Harry B. Kohl, archt., 491 Lawrence Ave. West, **Toronto, Ont., Owner Builds, $2,500,000**, two 7 and 15 story APARTMENTS, Wedgewood Dr. and Torbruk Crescent, TORONTO, ONT.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Westinghouse International Corp.**, 40 Wall St., **New** York, N. Y., U.S.A., CA Est. **$3,000,000**, ELECTRICAL EQUIPMENT for Steel Rolling Mill, AVILES, SPAIN. Empresa Nacional Siderugica S.A., Madrid, Spain.

▲ **Fluor-Schuytvlot N. V., subsidiary Fluor Corp., Ltd.** 25000 S. Atlantic Blvd., Los Angeles 22, Calif., U.S.A., CA Est. **$2,000,000**, GAS PURIFICATION and SULFUR RECOVERY PLANT near Dueste, WEST GERMANY. Wintershall A.G., c/o contractor.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **ARGENTINA**—National Hy., Dpt. of Argentine Republic, Avenida Maipu, Buenos Aires, Bids opened 4/28, ROADS,

Argentina—**Perales Aguiar S.A., Polledo S.A., Venezuela** 925, Buenos Aires, Argentina, LB **$6,173,062**, est. $5,769,591, Group 1, 167.8 klms. bit. tarred hy. Rte. 18 and Rte. 14, incl. reconditioning of basis works Entre Rios Province, Parana-Villaguay A. Sandoval-S. Salvador;

Argentina—**Cedosa, Can Martin**, 575, Buenos Aires, Argentina, LB **$4,504,470**, est. $4,283,969, Group 2, 101.7 klms. bit. tarred hy. Rte. 126, Entre Rios Province, junction R. 127-La Paz.La Paz-Arroyo Hondo. CD 3/14/61.

FOREIGN

▲ **Australia**—Bids Asked—Reserve Bank of Australia, Establishment Dpt., **Head Office, Box 3947, G.P.O.,** Sydney, New South Wales, 21 story, 3 bsmnt. OFFICE, Martin Pl., Phillip St. and MacQuade St. $9,000,000. Firms interested should register by May 22, 1961.

HEAVY CONSTRUCTION—LB & CA

ENGLAND—Ministry of Transport, London, ROAD,

Tarmac Civil Engineering, Ltd., Ettingshall, Wolverhampton, England, CA Est. **$24,080,000**, 15 mi. Birmingham-Preston Motorway with 36 bridges. Scott & Wilson, Kirkpatrick & Partners, 47 Victoria St., London, engrs., for bridges.

PROPOSED PROJECTS

SEWERS, WASTE DISPOSAL

▲ **Conn., Poquonnock Bridge (Br. New London)**—Town of Groton, Town Hall, SEWAGE TREATMENT PLANT and SEWERS, Poquonnock Bridge and Long Hill. $2,778,400. Hayden, Harding & Buchanan, 1340 Soldiers Field Rd., Boston, Mass., consult. engrs. CD 6/10/60.

▲ **Mo., St. Joseph**—City, City Hall, **$3,360,000** bond election June 20, MAIN SEWERS and EXTENSIONS. Black & Veatch, 1500 Meadow Lake Parkway, and P. O. Box 8405, Kansas City 14, Mo., consult. engrs. CD 4/19/61.

▲ **N. J., New Market**—Piscataway Twp. Sewerage Auth., Municipal Bldg., SEWERAGE SYSTEM, Piscataway. **$4,200,000.** C. J. Kupper, 15 Stelton Rd., consult. engr. CD 12/16/59.

STREETS AND ROADS

▲ **Mo., Webster Groves (St. Louis 19 P.O.)**—City, City Hall, 4 E. Lockwood Ave., defeated **$2,000,000** bonds May 2, REPAVING, etc., various arterial streets and avenues; defeated **$500,000** bonds May 2, REPAIRS residential streets. CD 3/2/61.

EARTHWORK. WATERWAYS

▲ **California**—Bd. Supervs. Placer Co. Water Agency, County Courthouse, Auburn, bond election June 20, WATER POWER PROJ., Upper Middle Fork, Placer Co. **$140,000,000.**

▲ **Calif., San Luis Obispo**—San Luis Obispo County Flood Control & Water Conservation Dist., Court House, WATER TRANSMISSION LINE from Nacimiento Reservoir to San Miguel, Pasco Robles, Templeton, Atascadero, Santa Margaritea and San Luis Obispo with DAM and RESERVOIR at Pasco Robles Creek. **$8,000,000.** Leeds Hill & Jewett, 609 S. Grand Ave., Los Angeles, Zone 17, engrs. Bids Spring 1963. CD 5/5/61.

UNCLASSIFIED

▲ **Calif., San Francisco**—San Francisco Port Auth., Ferry Bldg., revising plans dredging, sand and rock facing, seawall for PORT TERMINAL PROJ. **$30,000,000.** John A. Blume & Assoc., 612 Howard St., San Francisco, Calif., consult. engrs. CD 1/4/61, under LB.

▲† **Va., Portsmouth**—P. Wks. Office, Fifth Naval Dist., Norfolk, Zone 11, plans by Hayes, Seay, Mattern & Mattern (A & E), 1615 Franklin Rd. S.W., Roanoke, IMPRV. WATERFRONT UTILITIES and FACILITIES for Submarine Repair work. **$3,000,000.** CD 7/29/60.

PUBLIC BUILDINGS

▲ **Ala., Mobile**—Mobile County Bd. Educ., 504 Government St., plans by Platt Roberts & Co., 1010 Merchants National Bank Bldg., 178,000 sq. ft. W. P. Davidson HIGH SCHOOL, **Azalea** Rd. **$3,000,000.** Hamlin & Duepree, 55½ N. Royal St., consult. engrs.

▲ **Ala., Mobile**—Mobile Infirmary, Louiselle St., plans by Platt Roberts & Co., 1010 Merchants National Bank Bldg., 6 story, 120,000 sq. ft., HOSPITAL ADDN. **$3,400,000.** Ewin, Campbell & Gottief, 50 Macon St., struct. engrs. Hamilin & Duepree, 55½ N. Royal, mech. engrs.

▲ **Calif., Los Angeles**—Bd. Regents, University of California, 405 Hilgard Ave., plans by Welton Becket & Assocs., 10,000 Santa Monica Blvd., 4 story top MEDICAL CENTER ADDN. **$10,000,000.** Constr. 1962.

▲ **Fla., Miami**—Miami Housing Auth., 327 N.W. 62 St., plans by Smith & Korach, 721 N.W. 21st Court, two 10 story APARTMENTS, N.W. 7th St. and 14th Court. **$2,000,000.** Bids Fall 1961.

▲ **Ill., Belleville**—Belleville Township High School and Junior College Dist. 201, 2600 W. High St., plans by Hellmuth, Obata & Kassabaum, Inc., 315N. 10th St., St. Louis 1, Mo., and Weisenstein, Rogers & Hausmann, 3201 W. Main St., archts., brick, con-concrete, steel HIGH SCHOOL. **$3,500,000.** CD 10/2/58.

▲ **Ill., Joliet**—Joliet Twp. High School Dist., 201 E. Jefferson St., bond election May 27, two HIGH SCHOOLS, East Side and West Side. **$6,800,000.** CD 21/23/54.

▲ **Ill., Chicago**—University of Illinois, Urbana, plans by Richardson, Severens & Scheeler, Champaign, and Shaw, Metz & Assocs., 208 South La Salle St., Zone 4, first phase MEDICAL SCIENCES BLDG., Wolcott near Polk. **$3,580,000.** Bids in Summer.

▲ **Ind., Indianapolis**—Trustees, The Health & Hospital Corp. of Marion Co., 730 E. Washington St., plans by McGuire, Shook, Compton & Richley, I.S.T.A. Center, (first phase) GENERAL HOSPITAL ADDN., **$12,000,000**, Constr. 1962; (second phase) renovating present buildings, outpatient bldg., **$5,000,000.** Bevington Taggart & Fowler, K of P Bldg., consult. engrs. CD 2/19/48.

▲† **Md. Poolesville**—General Services Admin., 19th and F Sts. N.W., Wash., D. C., plans by Hayes, Seay, Mattern & Mattern, 1707 H St., N.W., Wash., D.C., KENNEL, FARM ANIMAL, utility structures and staff quarters, Animal Farm for National Institutes of Health, 1st Phase. **$2,800,000.** Total est. $11,000,000.

▲ **Mass., Leominster**—City, Supt. Schools, plans by L. W. Briggs & Assoc., Inc., 90 Park Ave., Worcester, HIGH SCHOOL, Granite St. **$3,479,000.** CD 10/22/59.

▲ **N. J., Freehold**—Freehold Regional High School Dist., Broadway, referendum bonds and project June 15, HIGH SCHOOL, Yellow Brook Rd., Howell Twp. **$3,400,000.** Micklewright & Mountford, East Stuyvesant, Trenton, archts. CD 4/5/61.

▲ **N. Y., Plainedge**—Plainedge Unif. School Dist. No. 18, Hicksville-Massapequa Rd., Bethpage, defeated

(Continued on page 69)

Lead provides critical radiation shielding at Indian Point

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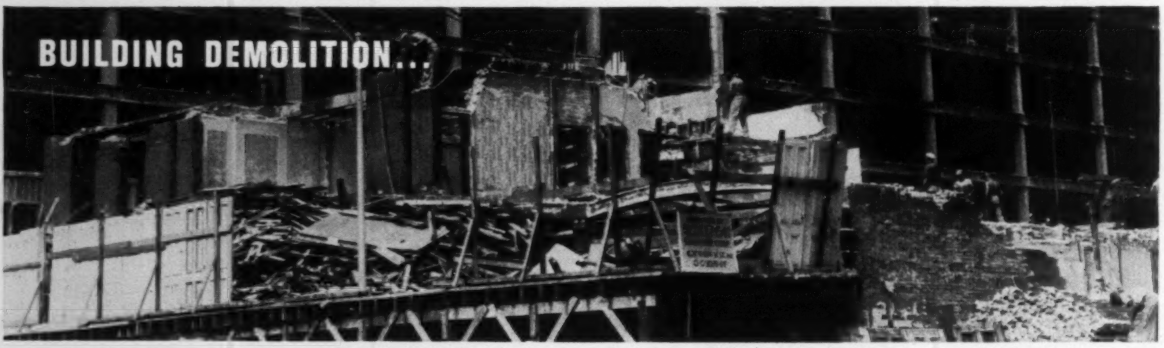

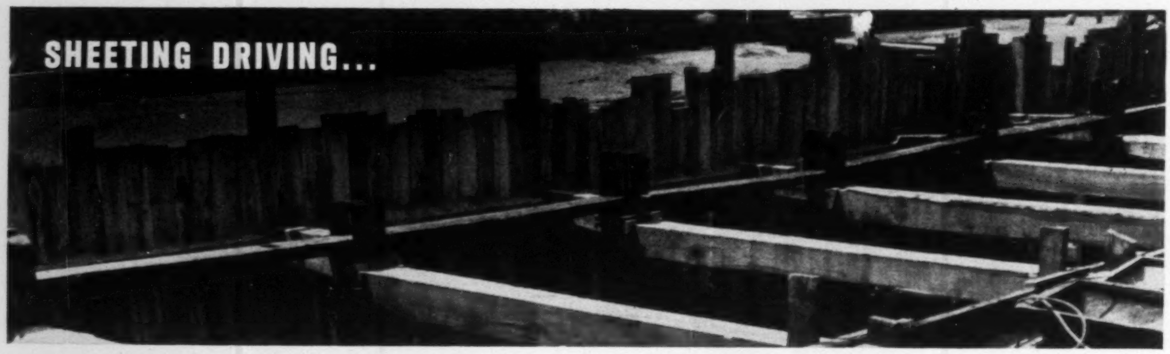

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(Continued from page 66)

$3,220,000 referendum May 3, JUNIOR HIGH SCHOOL, Baldwin Dr. **$2,560,000.** CD 4/14/61.

▲ **N. Y., Plainview**—Bd. Educ. Central School Dist. No. 4, Jamaica Ave., **$4,990,000** referendum May 31, JUNIOR HIGH SCHOOL, east side Washington Ave. CD 4/17/61.

▲ **O., Akron**—City, City Hall, three deck PARKING, Bowery, Howard, Mill, Ash and Quaker Sts. **$2,000,000.** Matthew Rosenstock & Assocs., 834 E. Exchange St., consult. engrs. CD 12/10/59.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—McCulloch Corp., c/o Welton Becket & Assocs., archts.-engrs., 10000 Santa Monica Blvd., Los Angeles, Zone 25 (1st phase), McCulloch CENTER, 12 story, 235,000 sq. ft. OFFICE, 1 story RESTAURANT, 2 level PARKING STRUCTURE, Century and Sepulveda Blvds.; (2nd phase) 11-12 story, 100 x 200 ft. OFFICE; (3rd phase) OFFICE BLDG., Century and Sepulveda Blvds., 98 St. and Vicksburg Ave., Los Angeles Airport. **$20,000,000.**

▲ **Calif., Oxnard**—Brighton-Bilt Homes, 265 N. Robertson Ave., Beverly Hills, plans by Wm. M. Bray, 962 N. La Cienega Blvd., Los Angeles, 595 DWELLINGS, First Stage 130 DWELLINGS 100 acre subdivision, Rose and Colonia Rds. **$1,430,000.** Total est. **$6,545,000.** Neil Cummings, Oxnard, consult. engr.

▲ **Fla., Miami**—Federated Dpt. Stores, 1700 NW 32 Ave., plans by Weed-Johnson Assocs., 550 Brickell Ave., 2 story, 130,000 sq. ft. Burdines DEPARTMENT STORE, N .Kendall Dr. and S. Dixie Hy. **$2,000,000.**

▲ **Fla., Oakland Park**—Real Site, Inc., 3121 NW 43rd Ave., Fort Lauderdale, SHOPPING CENTER, **$4,000,000.**

▲ **Fla., South Miami**—Pyms-Martin-Novack Bldg., c/o Charles E. Lackey archt, 1550 S. Dixie Hy., Coral Gables, 12 story OFFICE, SW 74th St. between 58 and 59 Ave. **$3,000,000.**

▲ **N. J., East Orange**—Harrison Towers Corp. of New York, 101 Park Ave., New York, N. Y., plans by Morris Lapidus Harle & Liebman, 139 East 56th St., New York, N. Y., 17 story APARTMENT, South Harrison St. **$4,500,000.**

▲ **N. J., East Orange**—Parkway House Inc., 1100 McCarter Hy., Newark, plans by Isadore Naftali, 312 High St., Newark, 14 story, 170-unit APARTMENT, Garden State Parkway Drive and Fourth Ave. **$3,500,000.** Bernard Shaw, 37 Washington Ave., Morristown, struc. engr. Emil Spina, 19 Beechwood Rd., Summit, mech. engr. Constr. Summer 1961.

▲ **N. J., Passaic**—Towers, Inc., c/o Richard Wilson Constr. Co., Inc., 100 Hugenot Ave., Englewood, plans by Isadore Naftali, 312 High St., Newark, 15 story, 135-unit APARTMENT, Passaic Ave. **$3,250,000.** Bernard Shaw, 37 Washington Ave., Morristown, struc. engr. Herman Scherr, 18 John St., New York 38, N. Y., mech. engr. Constr. Summer 1961.

▲ **N. J., Trenton**—S. Hekemian & Son, 477 Main St., Hackensack, 600-unit APARTMENT, Reeder Ave. off Lawrence Rd. **$5,000,000.**

▲ **N. Y., New York**—Benenson-Rose-Tisch, 529 Fifth Ave., Zone 17, plans by Emory Roth & Sons, 400 Park Ave., 13 story, 92 x 205 ft. OFFICE, 61-77 W. 46 St., 1180 6th Ave. **$3,285,000.** Alfred Kleinberger, 551 5 Ave., Zone 17, mech. engr. James Ruderman, 32 Union Square, Zone 3, struct. engr. CD 1/23/61.

▲ **N. Y., New York**—The Durst Organization, 200 E.42 St., Zone 17, plans by Emory Roth & Sons, 400 Park Ave., Zone 22, 20 story OFFICE, 757 3 Ave. and E.47 St. **$5,000,000.**

▲ **N. Y., New York**—Herbert Fischbach, 545 Madison Ave., Zone 22, plans by Emery Roth & Sons, 400 Park Ave., Zone 22, 18 story OFFICE, 771-81 3 Ave. and 205-07 E. 48 St. **$3,500,000.** Owner changed. CD 12/14/60, under Syndicate, c/o J. E. Saltzman, as owner.

▲ **N. Y., New York**—George B. Rabinor, 158 Irving Pl., Woodmere, plans by Oscar Silverstone, 666 5 Ave., Zone 19, 10 story, 160 unit Elder Terrace APARTMENT, 1.25 acres, east side Elder Ave., north of Bruckner Blvd., Bronx Boro. **$3,022,000.** Mayer Assocs., 110 E. 30 St., Zone 16, mech. engrs. Robert Rosenwasser, 375 Fifth Ave., Zone 16, struct. engr. Constr. Fall 1961. CD 3/29/61.

▲ **N. Y., New York**—Abraham Sommer, P.O. Box 188, Iselin, N. J., plans by Emory Roth & Sons, 400 Park Ave., 23 story, 200 x 290 ft. 135 W. 50 St. OFFICE, 134-146 W. 51 St. **$8,400,000.** Sidney Barbanel, 29-46 Northern Blvd., Long Island City, mech. engr. James Ruderman, 32 Union Square, Zone 3, struct. engr. CD 1/23/61.

▲ **O., Columbus**—Owner, c/o Seidel & Dunn, archts., 1738 W. 5th Ave., 6 story OFFICE, southwest corner Broad and 5th Sts. **$2,000,000.**

▲ **O., Rocky River**—Owner, c/o Lloyd Peirman, 14550 Lorain Ave., Cleveland, Zone 11, plans by R. M. Hovanetz, 3119 W. 139th St., Cleveland, Zone 11, 190 suite luxury APARTMENT, Wooster Rd. and Shoreland Dr. **$2,680,000.**

▲ **Pa., Pittsburgh**—Lewis E. Kitchen, City Natl. Bank Bldg., Kansas City, Mo. and Aluminum Co. of America, Alcoa Bldg., Pittsburgh, plans by Deeter & Richey, 3 Gateway Center, Pittsburgh, 13 acre SHOPPING PLAZA, with underground garage, 1,400 DWELLING UNIT town houses and apartments, Stockton, Union, Montgomery and Sherman Aves. **$50,000,000.**

▲ **Tenn., Knoxville**—Morgan Schubert, 4000 Washington Ave., 300 RESIDENCES, **$4,200,000.**

▲ **Tex., Houston**—H & A Building Co., 918 Bay Oak St., 90 DWELLINGS in Bay area, **$2,200,000.**

▲ **Tex., Houston**—Old Market Corp., A. S. Koehler, (representative) 3611 Ella Lee Lane, multi-story MOTEL, **$2,750,000;** PARKING GARAGE, **$500,000,** Preston, Travis, Congress, Milam Sts.

▲ **Va. South Norfolk**—Philo Corp., c/o S. L. Nusbaum & Co., Maritime Tower, Norfolk, plans by Oliver & Smith, 333 West Freemason St., Norfolk, Downtown Plaza SHOPPING CENTER, stores, 100,000 sq. ft. office, parking for 1,000 cars, on 19 acre tract. **$5,000,000.**

▲ **Wash., Bellevue**—Crossroads, Inc., c/o J. Woodman & Assocs., archts., 14217 Lake Hills Blvd., 430,000 sq. ft. SHOPPING CENTER, GOLF COURSE, 562 unit COURT TYPE APARTMENTS. **$11,000,000.** Constr. this year on 100,000 sq. ft. unit shopping center.

▲ **Wis., Milwaukee**—Milwaukee School of Engineering, 1025 N. Milwaukee St., Zone 2, ENGINEERING and METAL LABORATORY, **$1,000,000;** 3 DORMITORIES, **$4,500,000;** STUDENT UNION, **$500,000.** Chas. Nagel & Assocs., 1615 Underwood Ave., Wauwatosa, Zone 3, consult. engrs.

INDUSTRIAL BUILDINGS

▲ **California**—Pacific Gas & Electric Co., 245 Market St., San Francisco, Zone 6, 660,000 kw. unit to double Contra Coast POWER PLANT, near Antioch, Contra Costa Co. **$73,000,000.** To go ahead 1962.

▲ **Del., Delaware City**—Tidewater Oil Co., 79 New Montgomery St., San Francisco, Calif., PLANT to produce Oxo Alcohol, adjacent to refinery, Air Products, Inc., Trexlertown, Pa., consult. engrs.

▲ **N. J., Pennsauken**—Central Airport, Inc., 383 Madison Ave., New York, 17, N. Y., plans by John B. Barry, 383 Madison Ave., New York, 13, N. Y., INDUSTRIAL PARK on 150 acres. Approx. **$10,000,000.**

▲ **N. Y., Westbury**—Engineers Hill Industrial Park, 467 Great Neck Rd., Great Neck, plans by Irving Hirshman, 280 Northern Blvd., Great Neck, Engineers Hill INDUSTRIAL PARK, incl. multi-story OFFICE, 4.2 acres, Brush Hollow Rd. between Jericho Turnpike and Northern State Parkway. Over **$2,000,000.**

▲ **Wash., Tacoma**—Dominion Tar & Chemical Co., Ltd., Sun Life Bldg., Montreal, Que., LIME PLANT. **$2,000,000.**

FOREIGN

▲ **India**—Govt. India, New Delhi, Stage II Sharavathi Hydro-electric POWER PLANT, incl. 445,000 kw. generator, raising dam to 188 ft., power house addn., 5 generators, transmission line and substation in State of Mysore. **$21,500,000** development fund loan.

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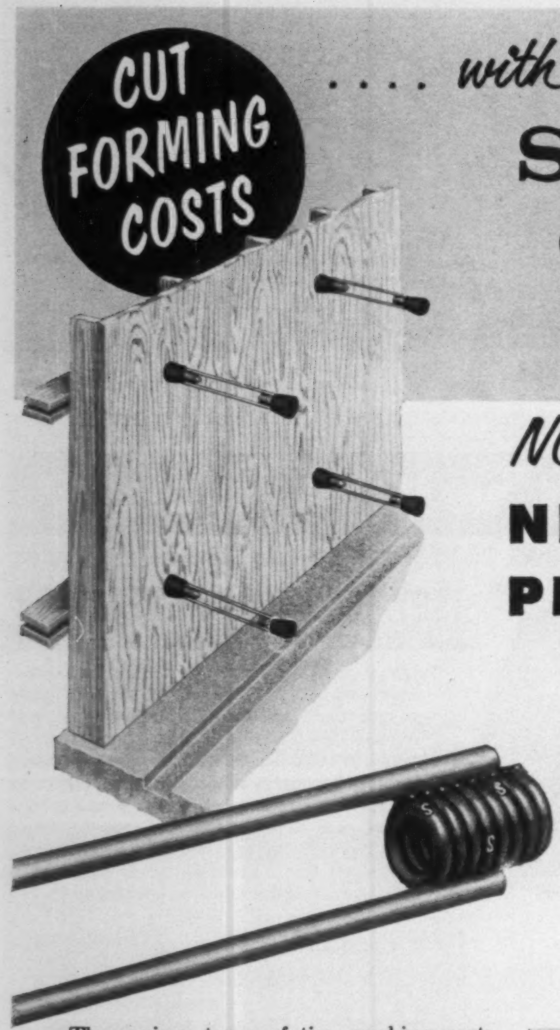

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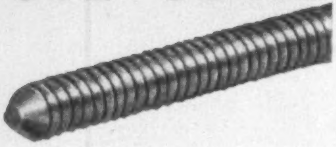

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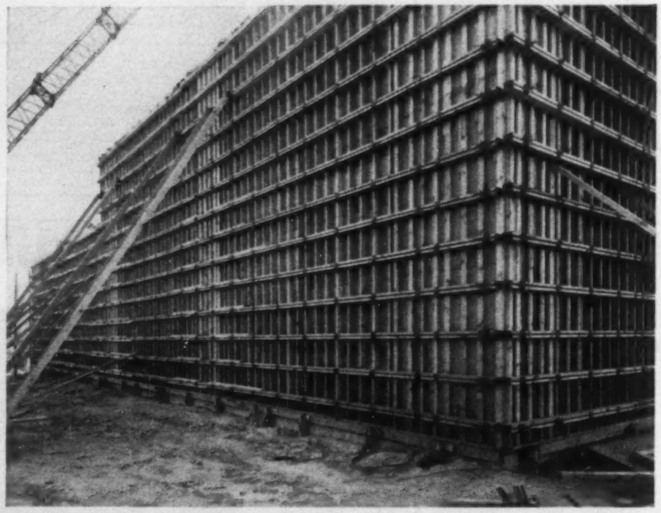

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲† **Perini Contr. Corp.**, 73 Mt. Wayte Ave., Framingham, Mass., CA **$2,349,260**, DAM and APPURTENANCES, Mad River Dam and Reservoir, CONNECTICUT. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. BA 5/3/61. CD 5/8/61, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **Pa., Phila.**—BA 6/1—U. S. Eng., 24th and Maryland Ave., Baltimore, Md., Frankford Arsenal-ELECTRICAL DISTRIBUTION SYSTEM, ENG-18-020-61-26. $2,500,000. Albert C. Wood Associates, Inc., 1812 Arch St., Phila., engr. CD 5/4/61.

BUILDINGS—BA

▲ **Pa., Burgettstown**—BA 6/29—Burgettstown Area Merged School Dist., SECONDARY SCHOOL, $2,500,000. A. E. Tennyson, 666 Washington Rd. Mt. Lebanon, Zone 28, archt. CD 10/15/59.

▲ **N. J., Linden**—Bids Asked—General Aniline & Film Corp., 111 West 50th St., New York, N.Y., CHLORINE CAUSTIC SODA PLANT ADDN., waterfront. $3,000,000. Rodney Wich, c/o owner, ch. engr.

BUILDINGS—SLC

▲ **Pa., Media**—Riddle Memorial Hospital, 5 W. Front St., soon lets contract Riddle MEMORIAL HOSPITAL. $2,500,000. Lawrie & Green, 321 N. Front St., Harrisburg, archts. Edgar T. Clapp, 1930 N. 2nd St., Harrisburg, engr. CD 4/20/61.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 5/12, ROADS,

Pa.—**Burkholder & Burkholder**, P.O. Box 271, Winchester, Pa., LB **$1,803,292**, (6 bidders), 16,955 ft. divided hy. RCC 24 ft. wide each side median area; 2 bridges, Interstate A Sect. of Cumberland Valley Freeway, L.R. 799(1A), Franklin Co.;

Pa.—**W. L. Dunn Constr. Co.**, Cochranton, Pa., LB **$189,726**, (2 bidders), 14,529 ft. cr. agg. base with bit. surf. 20 ft. wide, L.R. 60036(1)-20028(1), Venango and Crawford Counties. CD 4/5/61.

BUILDINGS—LB & CA

▲ **Castagna & Son, Inc.**, 2110 Northern Blvd., Manhasset, N. Y., LB **$2,576,287**, (10 bidders), general contract JUNIOR HIGH SCHOOL, AMITYVILLE, N. Y. Bd. Educ., Amityville, N. Y. BA 5/12. CD 4/27/61.

▲ **Joseph P. Blitz, Inc.**, 545 Madison Ave., New York 22, N. Y., LB **$7,178,000** (5 bidders), fdns. and general contract (concrete), Proj. No. NYC-36, Mary K. Simkhovitch HOUSES, Henry St., Scammel St., Madison St., Gouverneur St., Water St., Jackson St., Franklin D. Roosevelt Dr. and Montgomery St., NEW YORK, N. Y. New York City Housing Auth., Rm. 1002, 299 Broadway, New York 7, N. Y. BA 5/16. CD 5/4/61.

S. S. Silberblatt, Inc., 25 W. 45 St., New York 36, N. Y., LB **$7,882,000** (5 bidders), fdns. and general contract (steel) Mary K. Simkhovitch HOUSES (New York, N. Y.).

Afgo Engineering Corp., 475 Adelphi St., Brooklyn 17, N. Y., LB **$721,631** (3 bidders), heating and ventilating (concrete) Mary K. Simkhovitch HOUSES (New York, N. Y.).

H. Sand & Co., 11 Park Pl., New York 7, N. Y., LB **$704,410**, (3 bidders), heating and ventilating (steel) Mary K. Simkhovitch HOUSES (New York, N. Y.).

Herman H. Schwartz, Inc., 97-11 Sutphin Blvd., Jamaica, N. Y., LB **$763,600** (7 bidders), electric (concrete) Mary K. Simkhovitch HOUSES (New York, N. Y.).

John G. Hellman Co., Inc., 507 E. 76 St., New York 21, N. Y., LB **$774,000** (7 bidders), electric (steel) Mary K. Simkhovitch HOUSES (New York, N. Y.).

A. Rosen & Son, 211 E. 117 St., New York 35, N. Y., LB **$988,800** (7 bidders), plumbing (concrete) and LB **$988,800**, plumbing (steel), Mary K. Simkhovitch HOUSES (New York, N. Y.).

Westinghouse Electric Corp., Elevator Div., 1271 Ave. of Americas, New York 19, N. Y., LB **$499,292** (5 bidders), elevator (concrete) and LB **$499,292**, elevator (steel) Mary K. Simkhovitch HOUSES (New York, N. Y.).

▲ **Tandy & Alllen Constr. Co.**, 101 Park Ave., New York, N. Y., CA Est. approx. **$4,500,000**, 17 story APARTMENT, South Harrision St., EAST ORANGE, N. J. Harrision Towers Corp. of New York, 101 Park Ave., New York, N. Y. CD 5/8/61.

▲ **Sidney Halpern**, 16 West Main St., Somerville, N. J., Owner Builds, **$1,500,000**, 70 HOUSES, Brooks Blvd., HILLSBOROUGH, (SOMERVILLE P.O.), N. J. Donald Pantel, P.O. Box 272, Rte. 206, Somerville, N. J., archt. Tectonics Assoc., Rte. 206, Somerville, N. J., engrs.

▲ **Richard-Wilson Constr. Co.**, 100 Huguenot Ave., West Englewood, N. J., CA Est. **$2,500,000**, 15 story APARTMENT, Aycrigg Ave., PASSAIC, N. J. Passaic Towers, Inc., 100 Huguenot Ave., West Englewood, N. J. Isadore Naftali, 312 High St., Newark, N. J., archt.

▲ **Bayshore West Homes**, c/o Golden & Rappaport, Spring Harbor, N. J., Owner Builds, Over **$7,000,000**, 700 unit RESIDENTIAL DEVELOPMENT, VILLAS, N. J.

▲ **Somers Constr. Co., Inc.**, Union Ave. and Cynwyd Rd., Bala Cynwyd, Pa., CA Total est. **$8,000,000**, general contract superstructure ELECTRIC POWER PLANT EXPANSION PROGRAM, DOVER, DEL. City, City Hall, Dover, Del. CD 12/7/59.

▲ **Brentwood Manor Homes**, 6401 Castor Ave., Phila., Pa., Owner Builds, **$1,926,000**, RESIDENTIAL DEVELOPMENT (214), Medford Rd., PHILA, PA.

▲ **Tabone & Barbera**, 240 N. Main St., Pittston, Pa., CA Est. **$6,000,000**, SEMINARY, SCRANTON, PA. Our Lady of Abington, c/o Stickle & Assocs., archts., 2422 Prospect Ave., Cleveland, 15, O. BA 3/15/61. CD 2/13/61.

SOUTH

BUILDINGS—BA

▲ **Ala., Mobile**—BA 6/14—Mobile Co. Hospital Bd., c/o Mobile City Comn., City Hall, 9 story Mobile General HOSPITAL, Stanton Rd. and Fillingim St., $7,611,725. T. Cooper Van Antwerp, 354 St. Francis St., archt. CD 2/24/61.

HEAVY CONSTRUCTION—LB & CA

▲† **Western Contracting Corp.**, 400 Benson Bldg., Sioux City, Iowa, LB **$15,372,993**, Alt. B, DAM, DIKES, SPILLWAY, Summersville Reservoir, Gauley River, CIVENG-46-022-61-54, WEST VIRGINIA. U. S. Eng., 502 8th St., Huntington 1, W. Va. BA 5/16/61. CD 4/6/61.

▲ **Stupp Corp.**, P.O. Box 2548, Baton Rouge, La., LB **$1,477,874** (6 bidders), Proj. 6012, 194,000 lin. ft. steel pipe PILES for Wharf; LB **$602,436** (6 bidders), Proj. 6014, 460,000 lin. ft. steel pipe PILES, etc., for Wharf, NEW ORLEANS, LA. Bd. Comrs. Port of New Orleans, Rm. 204, No. 2 Canal St., New Orleans, La. BA 4/14. CD 3/20/61.

MIDDLE WEST

BUILDINGS—BA

▲† **Ill., Granite City**—BA About 6/22—U. S. Eng., 536 S. Clark St., Chicago, Zone 5, EQUIPMENT PROCESSING SHOP FACILITIES, Granite City Engineer Depot, ENG-11-032-61-89, approx. $1,400,000. Plans deposit $10. CD 1/2/51.

▲ **O., Kettering**—BA 6/27—Kettering Bd. Educ., Indian Riffle JUNIOR HIGH SCHOOL. $1,400,000. Rial T. Parrish, Knott Bldg., Dayton, archt. Arthur Scapelli, Knott Bldg., Dayton, engr. CD 2/28/61.

▲ **Mich., Owosso**—BA 6/22—Owosso P. Schools, 224 John St., HIGH SCHOOL and SWIMMING POOL. $3,870,000. Kingscott & Assocs., Inc., 511 Monroe St., Kalamazoo, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Freeman Constr. Co.**, Box 457, Wooster, O., CA **$2,175,000**, RESIDENTIAL CENTER for women, Bowling Green State University, BOWLING GREEN, O. State Dpt. P Wks., State Depts. Bldg., Columbus 15, O. BA 5/5/61, CA 5/11/61. CD 4/10/61.

▲ **Robert W. Setterlin & Sons Co.**, 2000 Kenny Rd., Columbus, O., CA Est. **$3,800,000**, general contract 12 story, 185 unit, concrete, glass, pink brick APARTMENT, COLUMBUS, O. Tibbals, Crumley, Musson, 965 East Broad St., Columbus, O. Paul J. Ford, 965 East Broad St., Columbus, O., engr. CA 5/4/61. CD 11/5/53.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield, ROAD,

Standard Paving Co., 308 W. Washington St., Chicago, Ill., CA **$1,875,890**, pavement 5.7 mi. rein.-con. triple box culvert (for Oat Creek) FAI Rte. 80 from approx. ½ mi. east of Ill. 82, easterly, Henry Co. BA 4/21/61. CD 4/25/61, under LB.

▲ **Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill., CA **$1,500,000**, SITE PREPARATION, DREDGING HARBOR ENTRANCE, Lake Calumet, CHICAGO, ILL. Bulk Terminals Inc., 120 S. LaSalle St., Chicago 3, Ill. CD 3/22/61, under Industrial Buildings.

BUILDINGS—LB & CA

▲ **A. Bentley & Sons, Co.**, 201 Elm St., Toledo, O., CA Est. **$1,500,000**, 2 story branch DEPARTMENT STORE, for Lasalle & Koch Co., on Secor Rd., near W. Central, TOLEDO, O. L & K Properties Corp., 513 Adams St., Toledo, O. BA 5/2/61. CD 4/28/61.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Mo., Warrensburg**—BA 6/9—Central Missouri State College, 270-Men's DORMITORY and 340-Women's DORMITORY. $1,500,000. Mantel & Steele, 4550 Main St., Kansas City, Mo., archts.-engrs. CD 4/26/41.

BUILDINGS—SLC

▲ **Mo., Frontenac (St. Louis 31 P.O.)**—Shriners Hospital for Crippled Children, 700 S. Kingshighway, St. Louis, Zone 10, soon lets contract 2 level, ground floor 112 x 248 ft. and 60 x 165 ft. HOSPITAL; 2 story, bsmnt., 51 x 302 ft. LOUDERMAN BLDG. (Residential and Research), Lindbergh Blvd. and Litzsinger Rd. Over $2,000,000. Sverdrup & Parcel & Assocs., Inc., 917 Olive St., St. Louis, Zone 1, archt.-engr. CD 9/17/57.

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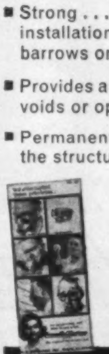

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HEAVY CONSTRUCTION—LB & CA

▲† **Forcum-Lannom, Inc.,** Clark St., Dyersburg, Tenn., CA **$1,522,271,** WATER SUPPLY SYSTEMS, Titan II Missile Launch Facilities, Little Rock Air Force Base, ENG-04-548-61-31, LITTLE ROCK, ARK. U. S. Ballistic Missile Constr. Office, 5651 West 96th St., Los Angeles, Calif. Low Bidders allowed to withdraw. CD 4/25/61, under CA.

▲† **H. B. Zachry,** Box 10188, San Antonio, Tex., CA **$1,487,494,** EARTHWORK, CONCRETE LINING, STRUCTURES, for Main Canals, San Angelo Proj., DC 5566, San Angelo, TEXAS. Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. BA 5/4/61. CD 5/8/61.

▲ **Nolan Bros., Inc.,** P.O. Box 218, Wichita Falls, Tex., LB **$6,457,163,** (9 bidders), Sunnyvale East Side WATER TREATMENT PLANT, DALLAS, TEX. City, City Hall, Dallas, Tex. BA 5/15/61. CD 4/10/61.

BUILDINGS—LB & CA

▲ **C. Rallo Contg. Co., Inc.,** 5000 Kemper Ave., St. Louis 39, Mo., LB **$1,925,000,** four 4 story RESIDENCE HALLS, one for 210 women and three for 282 men each, east of Big Bend Blvd., between Forsyth and Wydown Blvds., Proj. CH MO-60(D), ST. LOUIS, MO. Washington University, Lindell and Skinker Blvds., St. Louis 30, Mo. BA 5/11. CD 4/12/61.

▲ **Peter Kiewit Sons Co.,** 1024 Omaha National Bank Bldg., Omaha, Neb., CA **$1,724,950,** general contract 125,000 kw. fourth unit North Omaha STATION, Proj. 278, OMAHA, NEB. Omaha Public Power Dist., 803 Electric Bldg., Omaha, Neb. BA 5/4/61. CD 5/10/61, under LB.

▲ **Butcher & Sweeney,** 1633 Rogers Rd., Fort Worth, Tex., CA **$2,709,900,** general contract, 12 story, CRIMINAL COURTS and JAIL, FORT WORTH, TEX. Tarrant County, Fort Worth, Tex. BA 5/4/61. CD 5/8/61, under LB.
Southern Steel Co., 4634 S. Presa St, San Antonio, Tex., CA **$778,863,** JAIL EQUIPMENT for County jail and criminal courts bldg., (San Antonio, Tex.)

▲ **Mellwin Constr. Co.,** 35 South Fox, Denver, Colo., CA general contract 3 story, 70,000 sq. ft. RECREATION FACILITIES, DENVER, COLO. Jewish Community Center, 1475 Williams, Denver, Colo., Nat S. Sachter, 111 Adams, Denver, Colo., and Robert M. Morris, 330 W. Asbury Ave., Denver, Colq., archts. Total est. **$1,500,000.** CD 3/11/60, under CA.
Natkin & Co., 2201 S. Delaware, Denver, Colo., **CA,** 3 story, 70,000 sq. ft. mechanical for RECREATION FACILITIES, (Denver, Colo.)
Acme Electric Co., 3820 Forest, Denver, Colo., **CA** 3 story, electrical for RECREATIONAL FACILITIES, (Denver, Colo.)

FAR WEST

BUILDINGS—BA

▲ **Idaho, Arco**—BA 6/20—Atomic Energy Comn., Idaho Field Office, (SNROO) P.O. Box 2469, Idaho Falls, Phase I constr. work, Proj. S 5G, Naval Reactor Facility, National Reactor Testing Station, structural steel TEST PLANT, Inv. AE 61-SCH 496, $1,500,000. CD 7/29/59.

▲ **Hawaii, Honolulu**—BA 6/29—University of Hawaii, Bd. Regents Bachman Hall, Universiy and Wilder Ave., Stage I, East-West Center, high rise DORMITORY, EW-HRD-1; low rise DORMITORY EW-LRD-1; TRANSIENT QUARTERS, EW-TQ; ADMINISTRATIVE FOOD SERVICE, EW-AFS; THEATRE-AUDITORIUM EW-AUD $6,300,000. Plans deposit $200. Clifford Young & I. M. Pei, Rm. 207 931 University Ave., Honolulu, Hawaii, archts. CD 11/22/60.

BUILDINGS—SLC

▲ **Calif., San Diego**—Convair Astronautics, Purchasing Dpt., 5001 Kearney Villa Rd., Zone 11, soon lets contract 1 story, 171,000 sq. ft. tilt-up Convair ENGINEER and PRODUCTS SUPPLY BLDG. $3,000,000. Jack R. Lewis, 4772 Idaho St., Zone 16, archt. CD 5/4/56.

HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—Dpt. Hys., 3211 State St., Boise, Bids opened 5/9, ROAD,
Peter Kiewit Sons Co., Idaho Falls, Idaho, LB **$1,588,104,** (4 bidders), roadway, drainage structures, 80 ft. concrete bridge 9.614 mi. Interstate 15, Idaho Falls-Bassett roadway, 2 mi. connecting roadways, with 55 ft. concrete bridge, Bonneville and Jefferson Counties. CD 4/24/61.

▲ **Morrison-Knudson Co., Inc.,** 319 Broadway Ave., Boise, Idaho, and NATOMAS CO., 111 Sutter St., San Francisco, Calif., CA **$4,500,000,** WATER SYSTEM, SEWERAGE FACILITIES, ROADS and ACCESS ROUTES, Incline Village, LAKE TAHOE, NEV. Crystal Bay Development Co., Lake Tahoe, Nev.

▲† **Carl Carbon, Inc., N. A. Dogerstrom and Crick & Sons,** N. 3430 Cook St., Spokane 21, Wash., CA **$1,619,154,** REPAIR PRIMARY RUNWAY and TAXIWAYS, Kingsley Falls, Field, IFB 35-610-61-40 KLAMATH FALLS, ORE. Base Procurement Office, Kingsley Field, Klamath Falls, Ore. BA about 4/20/61. CD 3/28/61.

▲ **South Sutter Water Dist.,** P.O. Box 62, East Nicolas, Calif., rejected bids May 8, Camp Far West Proj. (A) EARTHFILL DAM and APPURTENANCES. (B) CONVEYANCE CANAL, PROTECTION DIKE, APPURTENANCES, near Wheatland, Yuba and Placer Counties, CALIFORNIA. $6,000,000. Will re-advertise. CD 4/21/61.

▲ **Guy F. Atkinson Co.**, P.O. Box 259, Long Beach, Calif., LB **$1,543,700**, est. $2,000,000, (4 bidders), 2,100 ft. open concrete WHARF, Berths 136-139, Wilmington, LOS ANGELES, CALIF. Los Angeles Harbor Dpt., City Hall, Los Angeles, Calif. BA 5/10. CD 4/12/61.

▲ **HAWAII**—State Hy. Dpt., 869 Punchbowl, Honolulu, bids opened 5/11, ROAD,
Territorial Contractors, 803 Mapunapuna, Honolulu, Hawaii, LB **$2,038,049**, (3 bidders), Kauai Belt Rd. (Kalihiwai Section), Emergency Relief, Proj. ER-00070102, Kauai Co. CD 4/18/61.

BUILDINGS—LB & CA

▲ **Carter Mack, Inc.**, 25100 South Normandie Ave. W., Harbor City, Calif., LB **$2,901,000**, (9 bidders), Charles Drew JUNIOR HIGH SCHOOL, Firestone and Compton Blvds., LOS ANGELES, CALIF. Bd. Educ., 1426 S. San Pedro St., Los Angeles, Calif. BA 5/16. CD 5/3/61.

▲† **Alcan-Pacific Co.**, 1921 Stockton Block, Sacramento, Calif., LB **$2,438,950**, Base with Additives, (5 bidders) 150 unit CAPEHART HOUSING, U. S. Naval Post Graduate School, MONTEREY, CALIF. Dist. P. Wks. Office, 12th Naval Dist., Rm. C 112, San Bruno, Calif. BA 5/16. CD 5/8/61.

▲ **Carlton Builders**, 246 S. Robertson Blvd., Beverly Hills, Calif., CA Est. **$1,600,000**, 79 DWELLINGS, Tract 22969 and 25324, TARZANA (LOS ANGELES), CALIF. I. N. S. Corp., Clifford Machine Co., Tera Land Co., Ed-Nor Corp., Flora Land Co., Graham Equipment Co., 246 S. Robertson Blvd., Beverly Hills, Calif. Raymond D. Conwell & Assoc., 919 S. Grand Ave., Los Angeles 22, Calif., archts.

CANADA

BUILDINGS—BA

▲ **Ont., Ottawa**—BA 5/30—Carleton University, 268 1st Ave., Ottawa, two RESIDENCES, LECTURE HALL, ARTS BLDG., ADDN., EATING CENTER, $3,000,000. Balharrie, Helmer & Morin, 77 Metcalfe St., archts. Prof. Eric Arthur Campbell Merrit, John Bland & Hart Massey, 77 Metcalfe St., assocs. archts. CD 2/7/61.

▲ **Ont., Toronto**—BA 6/1—The Salvation Army, 20 Albert St., TRAINING COLLEGE, Bayview Ave. $1,500,000. Marani, Morris & Allan, 1250 Bay St., archts. Reicher, Bradstock & Assocs., 600 Eglinton Ave. E., engrs. CD 5/5/60.

BUILDINGS—SLC

▲ **Que., Montreal**—Imperial Bank of Canada, 610 St. James St. W., soon lets contract 16 story, BANK and OFFICE, air-conditioned, St. James and McGill Sts. $1,500,000. Ross, Fish Duschenes & Barrett, 4115 Sherbrooke St. W., archts. CD 4/27/61.

HEAVY CONSTRUCTION—LB & CA

▲ **Bedford Constr. Co., Ltd.**, 36 Brydon Dr., Rexdale, Ont., LB **$3,685,378**, (8 bidders), Contract 4, PRIMARY and DIGESTION SEWER TANKS, sludge lagoons, related structures, OTTAWA, ONT. City, City Hall, Ottawa, Ont. BA 5/2/61. CD 4/4/61.

▲ **Mc Namara Marine Ltd.**, 57 Industrial St., Toronto, Ont., LB **$1,480,600**, DREDGING St. Lawrence River ship channel between Montreal and Quebec City, QUEBEC. Dpt. Transport, Hunter Bldg., Ottawa, Ont. BA 5/3/61. CD 4/27/61.

BUILDINGS—LB & CA

▲ **Principal Investments Ltd.**, 113 Richmond St. W., Toronto, Ont., Owner Builds, **$1,500,000**, SHOPPING CENTER, Dundas St. E., BELLEVILLE, ONT. CD 8/11/60.

▲ **Ellis Don Ltd.**, Box 852, London, Ont., CA **$2,991,717**, (14 bidders), MENTAL HOSPITAL, 1 story cottages, 2 story wings, 2 story administration bldg., OWEN SOUND, ONT. Dpt. P. Wks., Parliament Bldgs., Queens Park, Toronto, Ont. BA 4/12/61. CD 4/18/61, under LB.

▲ **Harry Davidson & Max Tanenbaum**, c/o Freedman & Petroff, archts., 3130 Bathurst St., Toronto, Ont. Owner Builds, **$2,000,000**, 100,000 sq. ft. steel frame rein.-con. glazed brick DISCOUNT STORE, two SUPERMARKETS, other stores, SE corner Finch Ave. W. and Jane St., TORONTO, ONT. Alex Tobias & Assocs., Ltd., 194 Wilson Ave., Toronto, Ont., engrs.

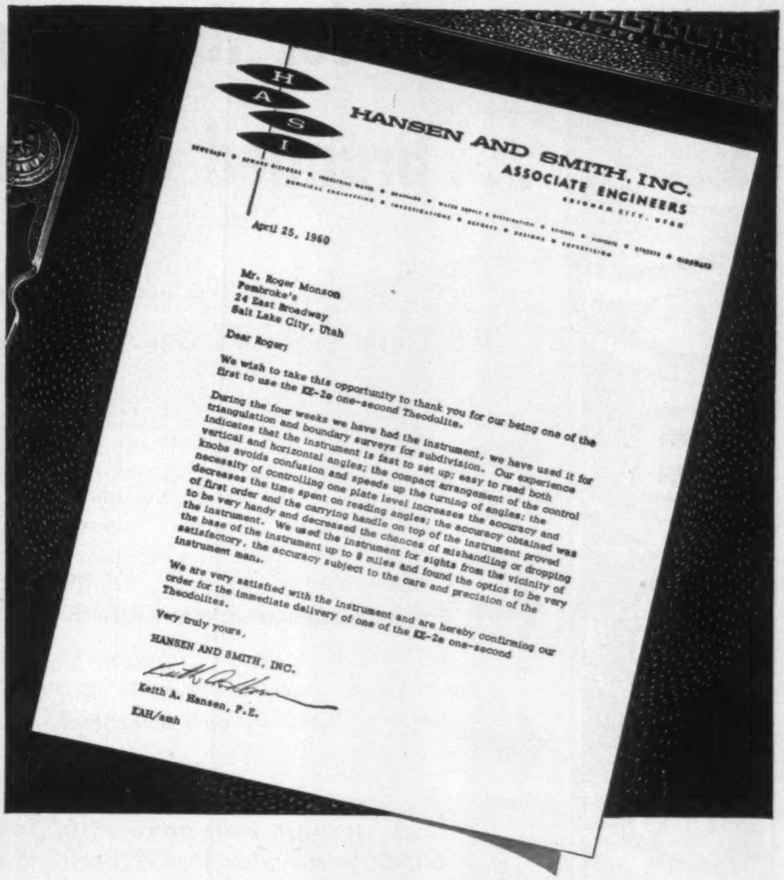
▲ **Francois Jobin, Inc.**, 925 Ste. Therese St., Quebec City, Que., CA Est. **$5,000,000**, 2 and 3 story, 5 wings rein.-con., brick, stone HIGH SCHOOL and PENSIONNAT, corner Ste. Foy Rd. and Vallon St., STE. FOY, QUE. Rev. Freres des Ecoles Chretiennes, 2360 Chemin Ste. Foy, Ste. Foy, Que. CD 1/4/61.

▲ **Roland Gendron**, 1405-124th St., Shawinigan, Que. CA Est **$1,500,000**, 3 story DOMESTIC SCIENCE SCHOOL, 340 ft. front, des Forges Ward, THREE RIVERS, QUE. Congregation des Filles de Jesus, 1193 St. Louis Blvd., Three Rivers, Que. CD 4/10/61.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **John Brown, Ltd.**, Melbourne, Australia, CA Est. **$15,750,000**, OIL PROCESSING PLANT near existing refinery, KWINANA, AUSTRALIA. British Petroleum, Ltd., London, England. Foster-Wheeler Ltd., London, England, Associate of Foster Wheeler Corp., 666 Fifth Ave., New York 19, N. Y., U.S.A., engrs.



HANSEN AND SMITH, INC.
ASSOCIATE ENGINEERS
BRIGHAM CITY, UTAH

April 25, 1960

Mr. Roger Monson
Pembroke's
24 East Broadway
Salt Lake City, Utah

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During the four weeks we have had the instrument, we have used it for triangulation and boundary surveys for subdivision. Our experience indicates that the instrument is fast to set up; easy to read both vertical and horizontal angles; the compact arrangement of the control knobs avoids confusion and speeds up the turning of angles; the necessity of controlling one plate level increases the accuracy and decreases the time spent on reading angles; the accuracy obtained was of first order and the carrying handle on top of the instrument proved to be very handy and decreased the chances of mishandling or dropping the instrument. We used the instrument for sights from the vicinity of the base of the instrument up to 8 miles and found the optics to be very satisfactory, the accuracy subject to the care and precision of the instrument man.

We are very satisfied with the instrument and are hereby confirming our order for the immediate delivery of one of the KE-2e one-second Theodolites.

Very truly yours,

HANSEN AND SMITH, INC.

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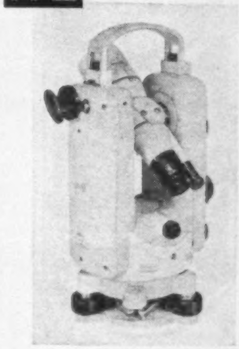

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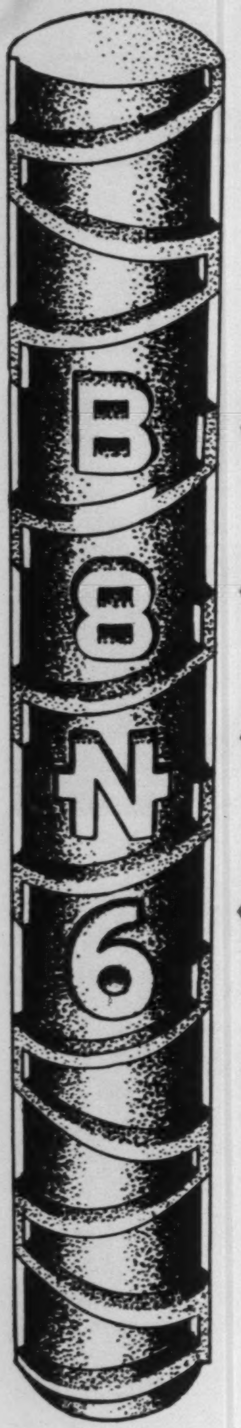

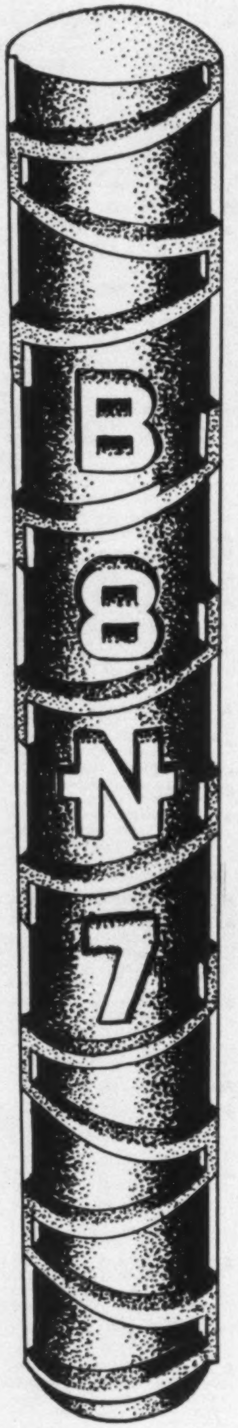

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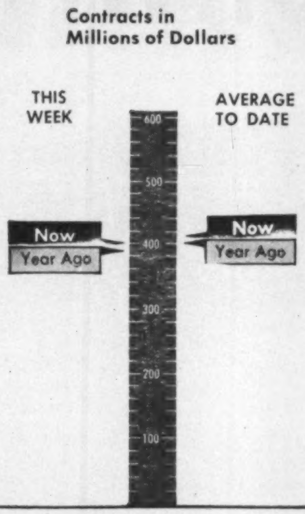
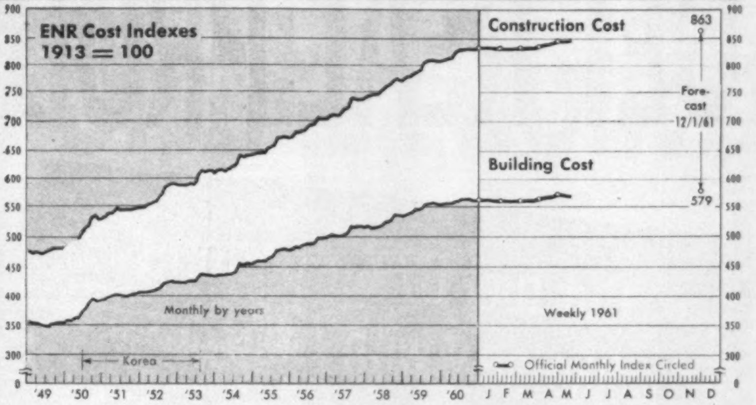
Construction Scoreboard

This Week . . .





ENR INDEXES (1913=100), 20-cities' average	Week of May 11 1961	% Change from Apr 13 1961	% Change from May 12 1960
Construction Cost	848.68	+1.02	+3.2
Building Cost	569.17	+0.3	+1.9

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week millions	Cum. 21 wks 1961 millions	Cum. 21 wks Chge '60-'61 %
All Heavy Construction	$400.0	$8,538.3	+ 1
By Ownership			
PRIVATE	228.1	4,365.4	— 4
PUBLIC	171.9	4,172.9	+ 6
State & Municipal	123.6	3,205.9	+ 6
Federal	48.3	967.0	+ 6
By Type of Work			
PUBLIC			
Waterworks	4.0	149.7	—18
Sewerage	7.6	287.0	+35
Bridges*	1.2	225.6	—36
Highways	33.8	1,415.0	+13
Earthwork, Dams & Waterways	26.2	337.8	+17
Buildings			
Excl. Housing	60.8	980.5	+ 5
Housing	23.5	301.0	+48
Unclassified	14.8	476.3	— 9
PRIVATE			
Buildings:			
Mass Housing	132.5	1,923.1	—15
Commercial	51.2	974.3	+14
Industrial	40.7	1,276.7	+25
Unclassified	3.7	191.3	—51

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of May 18 millions	Cum. 20 wks 1961 millions	Cum. 20 wks Chge '60-'61 %
Corporate Securities	$160.1	$1,291.0	+21
State and Municipal:			
All Except Housing	156.8	2,438.1	— 7
Housing	0	29.7	+118
Federal Loans	0.6	79.1	+19
Federal Aid	0	0	—100
Total Nonfederal	$317.5	$3,837.9	—41
Federal Appropriations:			
Projects in U. S.	0	1.0	—99
Outside U. S.	0	0	—100
Total New Capital	$317.5	$3,838.9	—43

Latest Month . . .

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	April 1961 (millions)	Percent Change from last Month	Percent Change from last Year
Total U. S. (ENR reported)	$124,959	−0.3	+2.3
By Ownership—			
Private	56,248	−0.2	+3.7
State & Municipal	54,588	−0.3	+1.7
Federal	14,123	−0.9	−1.1
By Type of Work—			
Waterworks	3,080	+0.7	+6.5
Sewerage	4,247	+1.4	+9.2
Bridges	3,287	−0.07	−1.1
Highways	13,447	−0.9	−2.8
Earthwork, Dams and Waterways	11,907	−1.1	−0.5
Public Buildings	22,849	+0.03	+3.2
Industrial Buildings	17,452	−0.9	+0.5
Commercial Buildings	27,992	+0.1	+6.6
Unclassified, Private	10,804*	+0.5	+1.7
Unclassified, Public	9,894	−1.1	+0.1

* Includes Private Bridges, $101 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1961 April (millions)	1961 4-months (millions)	Percent Change from 1960 April	Percent Change from 1960 4-Mos.
Total U. S. (ENR reported)	$1,349	$7,322	− 4	−17
By Ownership—				
Private	726	4,174	−15	−15
State & Municipal	535	2,824	+ 2	−18
Federal	88	324	+138	−30
By Type of Work—				
Waterworks	58	336	+57	+152
Sewerage	105	316	+94	+38
Bridges	18	134	+260	+42
Highways	70	428	−36	−67
Earthwork, Dams and Waterways	16	33	+78	−48
Public Buildings	304	1,676	− 4	− 2
Industrial Buildings	123	1,315	−43	+17
Commercial: Mass Housing	210	1,158	−40	−54
Other Building	306	1,322	+30	+25
Unclassified, Private	87	379	+81	+72
Unclassified, Public	52	225	+79	−44

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S.)ENR reported)	951	3,565	+10	+11
By Ownership—				
Private	307	1,378	− 9	+ 9
State & Municipal	508	1,617	+25	+17
Federal	136	570	+16	+ 3

GET REAL PRODUCTIVITY

Cut fuel 67%...performs like new with GM Diesel

When you can get a twelve-year-old shovel to move 1800 tons a day on only 15 gallons of fuel—and "perform with the responsive smoothness and economy of a new shovel"—you're getting real productivity!

And that's exactly what South Jersey Construction Co., Riverside, New Jersey, got when they repowered their ¾-yard Link-Belt with a "3-71" GM Diesel.

With the previous gasoline engine, they were burning 40 to 45 gallons of fuel a day. Their 3-71 "Jimmy" has cut this to only 15 gallons of lower-cost Diesel fuel.

South Jersey Construction have found their GM Diesel powered equipment more economical, say this about its performance—"We let the GM Diesels go five months without attention, merely changing lube oil as we go. The equipment with GM Diesels never seems to lose power. Acceleration is snappy and there's plenty of reserve power."

If that's the kind of productivity and performance you'd like from your equipment, specify GM Diesel when you buy or repower. There's a model to fit nearly every type of construction equipment. For details, see your GM Diesel Distributor. He's in the Yellow Pages under "Engines, Diesel," or write for more information.

GM DIESEL ALL-PURPOSE

GET A GM DIESEL ENGINE

Fast-moving loader saves investment in second unit

"The Trojan with the GM Diesel is a fast-moving, highly maneuverable piece of equipment that seems to be all over the yard at one time," says Charlie Young, Plant Manager for Young Bros. Contractors, Waco, Texas.

Young Brothers have used this Model 154 Trojan Loader with a "3-71" GM Diesel since March 1959—are very pleased with its performance and productivity. The unit stockpiles and services an asphalt plant and crusher—moves up to 1200 tons per day.

"It does the work ordinarily requiring two pieces of equipment, thereby saving us the investment and upkeep of a second unit," says Mr. Young.

That's the kind of profit-making productivity Young Brothers have come to expect from their "Jimmys." They bought their first GM Diesel powered unit in 1946—now operate 22 GM Diesels.

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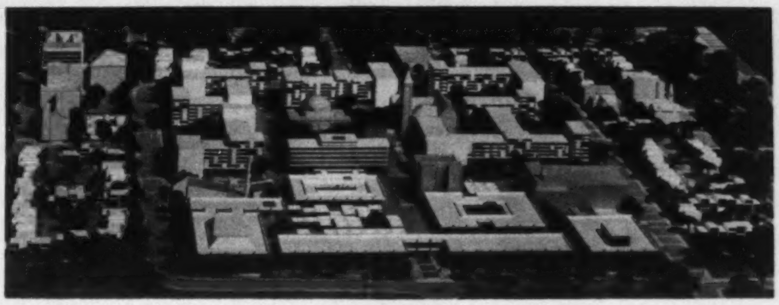
Aluminum After Big Jobs, Small Homes

Aluminum Co. of America last week took a first step toward filling the growing demand for shell housing, and moved deeper into the development of major commercial-residential projects.

The shell housing operation may prove significant in terms of construction, economics and home merchandising. The basic idea is not new—shell houses have been on the market five or six years. But Alcoa and a Philadelphia-based development company have worked out a new wrinkle. The builder, Major Realty Co., will erect the shells contiguously in a 2,000-acre tract near Jacksonville, Fla. Up to now, shell houses have turned up on as many scattered lots as there are buyers. They then become do-it-yourself projects.

But at the 4,000-unit Jacksonville development, Major Realty will provide either the shell, or a completed product, or any stage of work between the extremes. A shell will cost $2,950 including lot; a completed house will cost about $7,500.

One interesting long-shot possibility looms for the developer; the Federal Housing Administration may eventually decide that shell housing qualifies for an insured home improvement loan. The housing bill working through Congress now provides loans of up to $10,000 for a maximum of 25 years. If shell housing, now excluded from FHA programs, were made eligible under the new program, the shell housing market would take on huge dimensions. It could become the answer to the knotty problem of providing the low-cost housing government officials and economists say is urgently needed.



ALUMINUM CO. OF AMERICA will participate in this $50-million Pittsburgh project.

Alcoa and its customers will supply the various components for the houses. Outer walls of the houses are 1-in.-thick sandwich panels of aluminum, plastic foam insulation and compressed-fiber hardboard. Roof sections will be backed with bonded plastic foam to deaden rain noise and prevent condensation. Primary roof insulation will be installed in a suspended aluminum ceiling system.

In Pittsburgh, Alcoa bit deeper into the big-project market. With Lewis E. Kitchen, Kansas City, Mo., developer, the company will participate in construction of a $50-million urban redevelopment project (picture). The company will be aluminum consultant and supplier and assist in financing. It is Alcoa's first participation in a Title I redevelopment project. The company, however, is involved in three non-government-aided projects—the $250-million Century City in Los Angeles, a $45-million residential-commercial project in St. Louis and a $40-million apartment and office building in New York City.

The 78-acre Pittsburgh project, across the Allegheny River from the Golden Triangle, will contain several six- and seven-story apartment buildings, 200 one- and two-family houses, and underground garage for 2,000 cars, and stores.

Standard Specs Wanted in California

A uniform set of specifications for southern California public works jobs may result in about a year from a study just started.

Cooperating are the Southern California chapters of the Associated General Contractors and the American Public Works Association. The action is in line with similar efforts in other parts of the nation.

The California study will cover three major areas of specifications—general contract provisions, construction materials provisions and technical provisions.

Five major agencies hold responsibility for public works projects in Los Angeles city and county, and each one issues separate sets of specifications. The agencies are the County Engineer's Office, County Road Department, County Flood Control District, County Sanitation District and the City Engineer's Office. Together they now have $193 million worth of construction under way.

Industry spokesmen say uniform specifications could save hundreds of thousands of dollars in construction costs by:

- Increasing the number of contractors bidding on projects. Many contractors now limit bidding to the agencies whose specifications they are familiar with through experience.
- Obtaining increased uniformity of materials. Manufacturers could produce construction items with fewer variations. One manufacturer lists 39 different manhole frames and cover designs just to meet the various design specifications of public agencies in the Los Angeles area. Uniform specifications could cut the number to five or six.
- Decreasing contractors' preliminary work.
- Boosting on-site efficiency because of fewer technical variations.

Standardized specifications would also save money for other cities in southern California. Many that now use the standards of one or more of the major agencies could be expected to fall into line on uniform specifications.

AGC and APWA worked together on a similar project in Washington State. From that effort came uniform highway construction standards. This project was underwritten by the State Highway Development.

Other AGC chapters reaching for uniform specifications include the Texas Heavy, Municipal and Utilities Branch in Dallas, the Jefferson City and St. Louis branches in Missouri and the Minnesota AGC.

Business in Brief . . .

• **Quaker City improvement**—Philadelphia will take bids next month on $25 million worth of bonds to finance capital improvements. Funds will help pay for street improvements, health centers, ports and airfields, libraries and redevelopment.

• **Five-year plan**—Ohio will spend $2 billion on highways in the next five years, says Director E. S. Preston. The estimate includes cost of right-of-way, engineering, construction and contingencies.

• **Construction to follow**—Architectural design contracts for four buildings at Washington State University went to Ralph H. Burkard, Seattle; Cowan and Paddock, Yakima; Victor L. Wulff, Spokane; and Doudna, Williams and Phipps of Yakima. Building costs are estimated at more than $3 million.

• **Building outlays up**—Expenditures for new buildings construction in Pennsylvania last year totaled at least $860.4 million, says the state's Department of Labor and Industry.

• **Economic spark**—Eight investor-owned Ohio power companies will spend $3 billion in the next 10 years for generating, transmission and distributing facilities. About $200 million will be spent this year, says William H. Zimmer, president of Ohio Electric Utility Institute.

• **Canadian investment**—Industry will spend more than $5 billion this year in Canada for new plants, according to the industrial development branch of the Department of Trade and Commerce.

• **Legal knot cut**—Dismissal of a suit contesting a city zoning ordinance permitting a shopping center in Columbus cleared the way for construction of a $12-million commercial development. Work will start next year.

• **Still the Golden West**—Construction in California will flourish in the next 20 years, says Stanford Research Institute of Menlo Park, Calif. The study indicates California's growth rate will continue to outstrip that of the rest of the nation, although rate of the '50s will not be matched.

• **Miami airport job**—Dade County Port Authority plans the sale of bonds that will finance construction of a $16-million jet airliner overhaul base at Miami International Airport.

• **Dallas skyscrapers**—Work will start shortly on a 26-story apartment building in Dallas' downtown. It's part of a commercial and residential center planned by J. Curtis Sanford.

• **Most for the elderly**—Of 1,000 new public housing units planned by the Philadelphia Housing Authority, 750 would be for persons 62 and over. The authority says outlays will total $10 million.

• **Lock-up signed up**—Construction contract for $11.2-million Los Angeles County Jail went to Gust K. Newberg Construction Co., Los Angeles. Another contract of $5.2 million for a county women's jail was awarded to Tom E. Norcross, Inc. of Long Beach.

• **Subtracting from ads**—North Dakota just became the nation's second state to agree to control billboard advertising along Interstate routes. For this the state gets an additional 1½% in federal highway aid.

• **Bonds approved**—Voters in Eugene, Ore. approved a $2.4-million bond issue proposal that will pay for construction of a new City Hall. Architects are Stafford, Morin & Longwood, of Eugene. In Harrisburg, voters said "yes" to a $5-million courthouse bond issue, but they rejected a $1.9-million issue for urban redevelopment.

• **Price index drops again**—The Bureau of Public Roads composite mile bid index for 1961's first quarter dropped 1.2% below the last quarter of 1960. The index now stands at 133.4, ten points below 1957's record high. Why the drop? Tough competition for jobs.

• **Shell business**—Empire National Corp. and All-State Properties, Inc., of New York City, have formed American International Housing Corp. for the purpose of designing, distributing and selling shell and prefabricated houses in the U. S. and abroad.

Equipment Dealers Seek Better Equipped Salesmen

Look for a harder sell on construction equipment if an Associated Equipment Distributors plan for upgrading salesmen hiring practices goes through.

As the third prong of a three-pronged attack on improving salesmanship, the AED plans to provide its 1,300 members with a sales recruitment screening service that will weed out weak sisters before they are hired. The other two prongs, already in use, are management conferences for sales executives and institution of a college curriculum in construction equipment distribution.

Science Research Associates of Chicago has been hired by the AED to study equipment salesmen and work up criteria for salesman selection. They have concluded that nearly a quarter of the salesmen now selling construction equipment are not up to par. Since they estimate that a poor salesman costs the distributor up to three times his salary in missed sales, they intend to assist distributors in spotting non-producers before they are put to work.

For $35, Science Research Associates will evaluate a written test given a job candidate and recommend whether or not to hire the man.

AED, which has spent $4,000 to have the service developed, expects up to 60% of its members to subscribe.

Government Hits Again At Materials Price Fixing

A federal grand jury last week returned a price-fixing indictment against eight building supply companies in the Washington, D. C. area and six of the companies' executives.

The alleged conspiracy tended to raise prices of portland cement, masonry cement and mortar, building lime, plaster products, metal lath and wire mesh, according to the indictment. The agreements, started as early as 1958, affected about two-thirds of the sales in the area, the government says.

Named in the indictment were A. P. Woodson Co., Eckington Building Supply Co., Hudson Supply & Equipment Co., R. Robinson, Inc., Cushwa Brick & Building Supply Co., United Clay Products Co., Potomac Builders Supply Co., and District Building Supply Co.

Alleged co-conspirators included members of the building supply division of the Merchants and Manufacturers Association of Washington. About $6.8 million in sales to contractors, public and private bidders and the general public were involved, the government says.

New Look for the Labor Board?

- **The National Labor Relations Board may delegate decision-making power to its trial examiners.**
- **The proposal, which needs congressional approval, would bring faster relief in labor disputes.**

The five-member National Labor Relations Board, pressed by a mounting total of labor-management conflict cases, is seeking a major overhaul of its system for settling labor disputes.

Essentially, the Board members want to share the power that they alone hold to decide unfair labor practice complaints from unions and employers. They would turn over this authority to the agency's 64 NLRB trial examiners. But they would retain the right to reverse any examiner decisions they believe to be incorrect.

Their aim is to get much quicker processing of the heavy case-load—now coming in at the rate of 23,000 a year—and to cut into a backlog of undecided cases that currently stands at 1,400.

This week, NLRB Chairman Frank McCulloch is expected to unveil the Board's proposals in hearings before a House labor subcommittee. The subcommittee, headed by Rep. Roman Pucinski (D., Ill.) is midway in an investigation of NLRB processes and the reasons for Board delay in handling cases.

At the current rate, it usually takes more than a year for the Board to decide whether charges filed by unions and employers are justified. Frequently, before the Board finally acts, the aggrieved party has lost out. Often the union has lost its leverage in an organizing drive, or the employer has been irreparably damaged by a strike that is eventually determined to be illegal.

Both labor leaders and employers—but mostly on the union side—have complained against the slow Board processes. Actually the McCulloch Board's program is patterned after recommendations made by a six-man panel of management and labor attorneys earlier this year.

The Board's proposals, which would need congressional approval, are expected to receive support from President Kennedy and become part of his reorganization proposals for federal agencies.

In the construction industry, union officials are backing the proposal. They complain that because of the relatively fast turn around on construction projects, the issue in a Board case is moot before the Board acts. For contractors, however, who are most often involved in secondary boycott actions by unions, the Taft-Hartley law requires the Board to seek an immediate injunction against the union action. Thus, the union is at least held up until the Board finally rules.

The Board's case-handling plight was revealed at the Pucinski subcommittee hearings by its executive secretary, Ogden Fields. He noted the "unprecedented" increases in cases coming before the Board, which averaged until this year some 13,000 annually. Although the Board is turning out more decisions than ever, its backlog is still rising. "This is not a bright picture," said Mr. Fields. "No amount of diligence by the Board members can hope to compete with the ever-increasing demands of the work load," he added.

And Mr. McCulloch has said: "After two months in office we are further behind, in spite of hard work."

Union officials testifying at the hearing complained that Board delay has caused injustices to their cause. William Pollock, president of the textile workers union, charged that employers, particularly in the South, effectively and illegally resisted union organizing drives and his union was unable to get legal recourse before the labor agency because of the delay.

William Barton, labor relations expert for the Chamber of Commerce, also said a "radical change" is necessary because of the "delay in administering justice." However, Mr. Barton proposed that the Board delegate more cases to the states rather than turning them over to trial examiners for solution. If this doesn't work, he said, "the Board should be abolished."

Earlier this month, the NLRB took its first steps to speed up part of its operations. Under authority provided in the 1959 Landrum-Griffin law, the agency turned over the processing of union representation cases to the NLRB's 28 regional offices. The regional directors can now set the dates for such elections where the workers decide whether they want to be represented by a union, or to have their union decertified. They can determine appropriate units and issue certifications. Decisions can be appealed to the Board.

Unemployment Costs May Mount

The need for new ideas in worker training programs and in the sharing of unemployment costs was suggested by developments on two fronts earlier this month.

The U. S. Labor Department reported a decline in unemployment but an increase in long-term unemployment, indicating, it said, that "we are not eating into structural unemployment" despite the signs of a business pickup.

At the same time, the President's Labor-Management Advisory Committee, meeting for the second time, called the unemployment problem "intolerable," cited the need for "broad, new retraining programs," and urged serious study of new approaches to the problem through collective bargaining and government action.

The structurally unemployed include those whose skills have not kept abreast of technological developments, as well as those displaced by automation, plant relocations and shifts in consumer demands.

The Labor Department reported that unemployment had dropped by 533,000 —which was described as seasonal—to 4,962,000 by mid-April, putting the seasonally adjusted rate of unemployment at 6.8%. It was 6.9% in mid-March. The number of workers out of jobs for 15 weeks or longer, however, rose to 2.1 million—which is a postwar high.

The government, according to Labor Secretary Arthur Goldberg, is already considering proposed changes in the unemployment compensation system to provide retraining and relocation benefits to the unemployed. Meanwhile, Walter Reuther hopes to break new ground on management's responsibility for unemployment during the auto industry's collective bargaining sessions this summer.

Builders Aim at Uniform Rates

New Jersey contractors progress on standardization of wages. New York shutdown continues.

Building contractors in New Jersey are moving closer to some of their labor contract goals. But in upstate New York, contractors have taken a $40-million shutdown in an effort to achieve some of theirs.

The New Jersey employers have obtained common expiration dates in many of their contracts with carpenters, laborers and bricklayers in nine northern counties. And they have worked out wage increases that will help eliminate area wage differentials that have existed between locals of the same trade.

The cost of the new contracts to members of the Building Contractors Association of New Jersey, however, is running relatively high. Increases in wages alone range from 15 cents an hour in one-year contracts to 75 cents in a three-year pact.

The one break that occurred last week in the eastern New York stalemate produced a cheaper settlement—12½ cents a year in a two-year contract. The contract covers laborers in Troy, Schenectady and Albany. It is the first areawide agreement for the local unions.

But the settlement had no effect on the general shutdown which centers around a strike by operating engineers.

A spokesman for Eastern New York Construction Employers, Inc., said two basic issues are involved with the engineers:

- Contractors are insisting on elimination of pushbutton and other "featherbedding" provisions, such as those that call for the assignment of engineers to tasks that have been "automated" out of existence.
- Contractors are seeking a new hiring hall clause with provisions specifically designed to end present referral practices that are "clearly illegal" and "closed shop" in nature.

The engineers picketed all jobs on a "hit and run" basis, the employer spokesman said. And the contractors shut down when they could no longer operate economically. This brought a halt on May 1 to substantially all industrial, commercial and institutional work in 10 eastern New York counties. The engineers' picketing from north of Glens Falls to the Canadian border was not effective and work in that area was not shut down.

The eastern New York employers are still negotiating with the plumbers, who also struck, and with 10 other trades that did not strike.

Of the settlements in northern New Jersey, the biggest one went to Morristown bricklayers, who are now assured of a $5.15 scale by May 1, 1963.

The bricklayers—Local 21—received a 20-cent increase retroactive to May 1 and will get another 10 cents on November 1. They will receive 25 cents more next May 1 and another 20 cents May 1, 1963 making a total of 75 cents.

The New Jersey progress toward wage stabilization is particularly apparent in the carpenters' contracts. Carpenter rates in six counties, for example, will be uniform at $4.70 by May 1, 1963. And carpenter fringes will also be standardized in six counties—15 cents for health and welfare and 10 cents for pensions.

The New Jersey contractors also have made further inroads on the elimination of the percentage method of computing fringe benefits. And in some cases they have negotiated a broader contractor stipulation for sending jurisdictional disputes to the National Joint Board. The stipulations in the Bergen County carpenters and laborers agreements, for example, apply to subcontractors under the general contractor's control.

Among the new settlements in New Jersey are these:

- Laborers in Bergen County: A three-year contract raises wages by 45 cents in three installments (15, 15, 15). First installment yields a new scale of $3.35. A five-cent increase in welfare payments raises these to 15 cents the first year. A five-cent boost in the pension contribution will raise the present 10-cent payment to 15 cents the third year.
- Carpenters in Passaic County: A three-year pact adds 52 cents to wages in three installments (20, 15, 17). Fringes remain at 15 cents for health and welfare, 10 cents for pensions. New scale after the first wage boost is $4.38. (Passaic bricklayers, who were getting $4.45, settled for 60 cents in a three-year contract. Annual installments are 15, 20 and 25).
- Bricklayers in Mercer County (Princeton): A two-year contract boosts wages 25 cents this year and 15 cents next year, for a total of 40 cents. New rate, effective May 1, 1961, was $4.60.

Labor in Brief . . .

- **Scholarship**—The bricklayers' first award of a Harry C. Bates Merit Scholarship has been made to James W. Oates, a California high school student who plans to study engineering and become a contractor.
- **Back to work**—New three-year labor contracts have ended strikes in Columbus, Ohio, by operating engineers and carpenters. Engineers won 42½ cents in three steps (12½, 15, 15). Carpenters received a nine-cent boost this year.
- **No-strike clause**—A new labor agreement for the Yellowtail Dam—a Bureau of Reclamation irrigation project near Hardin, Mont.—contains a no-strike clause. Disputes will be referred to a joint union-contractor board. If that fails, an arbitrator will take over.
- **Jurisdiction**—The $5.5-million Federal Building project in Little Rock, Ark., has been hit by a jurisdictional dispute between carpenters and lathers over installation of metal studs for movable, interior walls.
- **Apprenticeship**—The 17th Eastern Seaboard Apprenticeship Conference will be held June 5-8 in Manchester, Vt. Panel discussions will include apprenticeship training problems in the construction industry. The eight-state conference is expected to attract leaders in industry, labor and government.
- **A stitch in time?**—The Illinois State Council of Sheet Metal Workers has urged its locals to have their Joint Apprenticeship Committees include in their training programs lessons in the proper use of substitute materials, such as plastics and fiberglass. At stake is protection of the union's jurisdiction.
- **Pickets withdrawn**—Operating engineers Local 542 has ended a 22-day strike at General Electric's $30-million space laboratory project near King of Prussia, Pa. Under a truce worked out with federal mediators and project contractors, the issues in dispute will be included in local contract negotiations. The engineers have engaged in selective strikes.

For Labor Peace

Sheet metal workers urge use of adjustment boards

The Sheet Metal Workers' International Association is continuing its efforts to promote local-level settlement of labor disputes between its members and their employers without strikes.

Speaking in Chicago at the 1961 annual conference of the Illinois State Council of Sheet Metal Workers, David S. Turner, the union's general secretary-treasurer, urged local unions to set up dispute-adjustment boards with employers.

Working at the national level, the union and the Sheet Metal and Air Conditioning Contractors' National Association have established a National Joint Adjustment Board. The board is the final appeals machinery in a fairly elaborate grievance procedure recommended by the two groups. Local boards are the first formal steps.

Mr. Turner's major selling point is that the welfare and progress of those in the sheet metal industry depend on labor-management cooperation and harmony. Disputes that cause "down time" for employers and loss of income for workers are not good for anyone, according to Mr. Turner. He would like to see local boards operate on a continuing basis, eliminating "friction points" and forestalling disputes.

Specifically, Mr. Turner is trying to sell local sheet metal worker unions on Article X of the union's standard form of agreement. That calls for settling disputes over contract interpretation or enforcement in this fashion:

- On the spot settlement, if possible, by the contractor and the union.
- Referral of the dispute, if the first step fails, to the Local Joint Adjustment Board.
- An appeal to a special two-man panel if the local board fails. The panel would consist of a representative chosen by the international union and a representative selected by the contractor in the dispute.
- The final step, if the panel deadlocks, is an appeal to the National Joint Adjustment Board.

Strikes and lockouts are banned during the processing of disputes.

Mr. Turner sees little reason why disputes should not be settled early in the game. The biggest step, he says, is reaching agreement on the facts in a dispute—and the easiest place to do this is at the local level. "The farther away the machinery for the settlement is," he warns, "the more difficult it becomes to get at the real facts."

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Delaware State Highway Department
Notice to Contractors

Sealed proposals will be received by the State Highway Department of the State of Delaware until 2:00 P.M. (E.D.S.T.) June 7, 1961, for the following contracts: CONTRACT I-1(21)-1, FEDERAL-AID PROJECTS I-95-1(11) AND I-95-1(18), BASIN ROAD INTERCHANGE, New Castle County. Stabilize, grade, construct 2 major bridge structures 9" Reinf. Conc. Paving and Adjustments to Gas & Water Utilities. (Completion Time 450 Calendar Days). The principal work items are: 550,000 C.Y. Borrow; 6,000 C.Y. Portland Cem. Conc. Pavement; 2,548 C.Y. Portland Cem. Conc. Masonry; 826,000 Lbs. Structural Steel (Approx. Weight); 14,000 L.F. Cast-in-Place Conc. Piles; 370,000 C.Y. Swamp Excavation; 480,000 C.Y. Special Fill. CONTRACT I-1(23), FEDERAL-AID PROJECT I-95-1(15), STABILIZE SOUTH PORTION OF CHRISTINA INTERCHANGE, New Castle County. Excavating Unsuitable Material and Backfilling to Elevation 5.5′. (Completion Time 600 Calendar Days). The principal work items are: 455,000 C.Y. Channel Excavation; 32,000 C.Y. Borrow; 2,150,000 C.Y. Swamp Excavation; 2,750,000 C.Y. Special Fill. CONTRACT I-1(24), FEDERAL-AID PROJECT I-95-1(16), STABILIZE NORTH PORTION OF CHRISTINA INTERCHANGE, New Castle County. Stabilization by use of Sand Drains and Excavation and Backfilling to Elevation 5.5′. (Completion Time 600 Calendar Days). The principal work items are: 1,850,000 C.Y. Borrow; 1,250,000 C.Y. Swamp Excavation, 1,650,000 C.Y. Special Fill; 775,000 L.F. Sand Drains; 160,000 C.Y. Sand Blanket. The Department will also accept bids for a COMBINATION PROJECT which includes all the work contemplated under each of the above listed individual contracts. The Completion Time for the Combination Project is 750 Calendar Days. The major work items for the Combination Project would be: 472,000 C.Y. Channel Excavation; 2,432,000 C.Y. Borrow; 5,828 C.Y. Portland Cem. Conc. Masonry; 3,770,000 C.Y. Swamp Excavation; 4,880,000 C.Y. Special Fill; 775,000 L.F. Sand Drains; 160,000 C.Y. Sand Blanket. PREQUALIFICATION HAS BEEN WAIVED FOR THESE CONTRACTS. Prospective bidders may obtain contract documents from the Highway Department office, Third Floor, Administration Building, Dover, Delaware. Delaware State Highway Department, By: J. Gordon Smith, Chairman, William J. Miller, Jr., Acting Chief Engineer, May 10, 1961, Dover, Delaware.

District of Columbia—Highway Construction—Dept. of Highways & Traffic, D. C., May 1, 1961. SOUTHEAST FREEWAY CAPITOL SUBSTATION, FEDERAL AID INTERSTATE PROJECT NO. I-695-3(5)2, Invitation No. C-6146-H, consisting of 960 cu. yds. Concrete Masonry and 187,000 lbs. Structural Steel (Wage rates have been predetermined by Labor Dept.) Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Room 404, 499 Penn. Ave., N.W., upon deposit of a certified check for $20.00 per set, payable to D. C. Treasurer (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, June 6, 1961, in Room 424, 499 Penn. Ave., N.W.

Bids: June 13, 1961

City of Chattanooga, Tennessee

BRAINERD SEWAGE
TREATMENT PLANT ADDITIONS
Contract 24

Sealed proposals will be received by the City of Chattanooga, Tennessee, at the office of the Commissioner of Public Works, Room 204, City Hall, until 2:00 o'clock on Tuesday, the 13th day of June, 1961, at which time and place proposals will be publicly opened and read for:

Brainerd Sewage Treatment Plant Additions, Contract 24, covering the construction of a new wet well, detritor, settling tanks, aeration tanks, sludge digestion tanks, sludge disposal and blower facilities and remodeling of existing structures to chlorine contact tanks, chlorine storage, and elutriation tanks.

Copies of the plans and specifications may be examined at the City Engineer's office, Room 205, City Hall, Chattanooga, Tennessee, or the offices of Havens and Emerson, Room 2701, Woolworth Building, 233 Broadway, New York, N. Y., or 640 Leader Building, Cleveland, Ohio, after May 13, 1961.

Plans, Specifications, and Proposal Forms may be obtained at the office of the City Engineer, Room 205, City Hall, Chattanooga, Tennessee.

A deposit of forty dollars ($40.00) will be required for each set of plans and specifications taken from the above office. The entire deposit will be refunded if a formal bid is submitted to the City and the plans and specifications are returned in good condition within fifteen (15) days after receipt of bids. Where no bid is submitted and the plans and specifications are returned on or before the date hereinbefore specified, only one-half of the deposit shall be refunded. After said date no plans and specifications will be redeemed and the entire deposit shall be forfeited.

Extra copies of plans or specifications may be obtained at the cost of twenty dollars each, which sums will not be refunded. Extra plan sheets may be obtained at the cost of one dollar each which sum will not be refunded.

Each bid must be accompanied by cash, certified check or cashier's check to the order of the City of Chattanooga, Tennessee, in an amount equal to not less than five percent of the total amount of the bid; and a bid letter from a surety company licensed to conduct business in the State of Tennessee, engaging to furnish a performance bond upon the award of contract.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee and all Acts amendatory thereof. Bidder's name, address and license number must be placed on the sealed envelope containing these documents, and the envelope shall be plainly marked "Bid on Contract 24."

All bids must be made out on the proposal form bound in the specifications. No interlineations, additions, or deletions shall be made in the proposal form by the bidder.

Bids will not be received after the time specified for the opening of bids. Bids submitted after the hour appointed will be deemed invalid and returned unopened to the bidder.

The City of Chattanooga, through its Board of Commissioners, reserves the right to reject any and/or all bids, to waive any informalities in the bids received, and to accept any bid which in its opinion, may be for the best interest of the City.

Pat Wilcox, Commissioner
Department of Public Works,
Streets & Airport

OFFICIAL PROPOSALS

Bids: July 17, 1961

Republica De Nicaragua Empresa Nacional de Luz y Fuerza —Managua

INVITATION TO BIDDERS
HYDROELECTRIC SYSTEM TMV—FIRST STAGE

Date: May 25, 1961.

The Empresa Nacional de Luz y Fuerza, an autonomous entity of the state, Republic of Nicaragua announces that having obtained financing from the International Bank for Reconstruction and Development and from the Development Loan Fund for the construction of the first stage of the Tuma-Matagalpa-Viejo Hydroelectric System, will receive sealed bids addressed to the Construction Management of the same entity for the construction of the works described here on, until the 15 hours of the 17 of July of 1961.

Contract No. TMV-Ia 2
Project: TMV System—First Stage
Work: Operators' Village

Bids will be publicly opened and read aloud by the Construction Management of the Empresa Nacional de Luz y Fuerza in Managua at the 15 hours of the 17 of July of 1961.

Copies of the Contract Documents, plans and specifications may be examined and obtained upon the payment of Cs 350 or U.S.$ 50 at the Empresa Nacional de Luz y Fuerza (Construction Management) Managua, Nicaragua. Contract Documents, plans, specifications and general information may be examined at the Empresa Nacional de Luz y Fuerza (Construction Management) Managua, Nicaragua.

The said work consists of the following:
Location: Work situated 20 kilometers N.W. of the city of Jinotega, Department of Jinotega

Description:

Residential Houses: it is a group of nine single stage houses, with reinforced concrete frame, masonry walls and wood deck, complete of sanitary and electrical services.

Utilities: includes an aqueduct with 2½" G.I. pipe, pumping and filtration plant; a sanitary sewer with 8" concrete pipe and septic tanks; an electrical generating system with two 40 kWA diesel generators and distribution line.

Bids: June 27, 1961

Niagara Falls Bridge Commission Lewiston-Queenston Bridge Project United States and Canada

Sealed bids covering Contract No. 5 of the Lewiston-Queenston Bridge Project will be received by the Niagara Falls Bridge Commission at its offices in Niagara Falls, New York, until 4:00 P.M., Eastern Daylight Time, June 27, 1961.

This contract is entirely in the United States and provides for the construction of a Terminal and approaches to the Lewiston-Queenston Bridge now under construction. The work will include construction of embankment, paving, drainage, roads, buildings, Pedestrian, Toll, Customs and Immigration facilities, except certain landscaping which will be done under subsequent contracts, and other related work. Certain electrical equipment of Canadian manufacture will be delivered, duty paid, to the successful bidder for incorporation into the work of this Contract.

The work on Contract No. 5 is to be completed on or before May 15, 1962.

Plans, Specifications, and Bid Forms may be seen at the office of the Niagara Falls Bridge Commission, Niagara Falls, New York, and at the offices of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York 17, New York.

Copies of these documents may be secured at said offices by the deposit of $50.00 per set, $30.00 of which will be refunded upon the return of each set in good condition within one week after award of the contract.

A bid deposit in the form of a certified check for not less than five percent (5%) of the gross bid shall accompany each bid submitted.

Niagara Falls Bridge Commission
C. Ellison Kaumeyer
General Manager

Bids: May 31, 1961

The Port of New York Authority

TETERBORO AIRPORT
SANITARY SEWER CONNECTIONS
CONTRACT O & M 524

Sealed proposals for the construction of Sanitary Sewer Connections at Teterboro Airport will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M. o'clock Wednesday, May 31, 1961, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of Proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York

U. S. Government

Sealed bids from Small Business Concerns for alterations for data processing center, Treasury Disbursing Office, at 5000 Wissahickon Avenue, Philadelphia, Pa., Project No. 00935, will be received until 2:00 P.M., E.D.S.T., June 13, 1961, and then publicly opened. Bidding material may be obtained from the Business Service Center, General Services Administration, 250 Hudson Street, New York 13, N. Y., from the Custodian of the building where the work is to be done, or from the Chief, Philadelphia Field Office, Design & Construction Division, U. S. Custom House & Appraisers Stores, 2nd & Chestnut Streets, Philadelphia 6, Pa.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5602) will be received at Weslaco, Texas, until 10 a.m., Central Standard Time, June 20, 1961, for furnishing labor and materials for Clearing, Earthwork, Concrete Lining and Structures for Rehabilitation of B and D Lateral Systems, Mercedes Division, Texas, Lower Rio Grande Rehabilitation Project. Location Weslaco, Texas. Principal items are 270,400 cu. yds.—constructing embankments; 4,400 cu. yds.—concrete; 2,584 lin. ft.—furnishing and laying 60-inch diameter, class III, concrete culvert pipe with rubber gasket joints; and other work. Completion time 820 days. For particulars, address Bureau of Reclamation, P. O. Box 1609, Amarillo, Texas; P. O. Box 357, Weslaco, Texas; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5601) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, June 21, 1961, for furnishing eight (8) hydraulic hoists for 13.96-foot by 22.45-foot fixed-wheel gates for Glen Canyon Dam and Powerplant, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 450 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

Bids: June 22, 1961

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract NYA-590.010—New York International Airport—Cargo Buildings 86 and 87—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, June 22, 1961.

Contract NYA-590.011—New York International Airport—Cargo Buildings Nos. 86 and 87—Paving and Utilities—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, June 22, 1961.

Contract NYA-220.021—New York International Airport—Runway 13R-31L—Holding Pad and Taxiway—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, June 22, 1961.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, May 25, 1961

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Estimator-Engineer. Permanent position for man with experience in slip-form construction, both in the field and in cost estimating. Capable of take-off and pricing from preliminary and working drawings. Salary in line with background and experience. Engineering degree or registration is not a requisite. P-6637, Engineering News-Record.

Wanted—Competent and experienced Engineers on water works, water treatment, sewers and sewage treatment. State experience, salary required and when can report. P-6666, Engineering News-Record.

Traffic Engineer, City of Sioux City, Iowa. Population 90,000. College graduate—special training and experience in traffic engineering. Beginning salary $700. Reports directly to City Manager. Apply—Director, Personnel, City Hall, Sioux City, Iowa.

Sanitary Engineer to organize and supervise short courses for operators and engineers. Academic rank. Write: R. E. McCord, 231 Sackett Bldg. The Pennsylvania State University, University Park, Pa.

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P-6693, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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Steam Power Plant Design Engineer—Minimum 5 years responsible experience, including supervision of personnel, in design of steam power plants. Progressive consulting engineering firm offers permanent employment with opportunity for personal development and advancement potential. Submit resume and salary requirements to Stanley Engineering Company, Muscatine, Iowa.

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Sanitary Engineer with extensive experience in preliminary engineering and design of sanitary projects. Submit complete resume of education, experience and qualifications, together with salary requirements. Stanley Engineering Company, Hershey Building, Muscatine, Iowa.

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Water Works Engineer—Graduate engineer 5-10 years experience design, construction, testing distribution systems. Permanent employment water works management company. Philadelphia, Pa. Reply P-6767, Engineering News-Record.

(Continued on the following page)

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P-6723, Engineering News-Record
Class Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

EMPLOYMENT OPPORTUNITIES

• *POSITIONS VACANT*

(Continued from preceding page)

Painting Estimator of buildings and structures. Thorough—accurate—sales personality. Top Philadelphia organization. Replies confidential. Write complete resume and starting salary. P-6741, Engineering News-Record.

Overseas Employment—Electrical Construction job in Liberia, West Africa. Young engineer with transmission and distribution experience. Material take-off, Material inventory, and distribution staking sheet summaries. Present contract should terminate approximately 4 months. Salary $300.00 week. Schulman-Hatfield-Marson-Gens, 2416 South Michigan Avenue, Chicago 16, Illinois, Phone: CAlumet 5-3206.

Engineer with Gunite Experience for Midwest territory. Must be capable of estimating all types work. Send resume and references P-6760, Engineering News-Record.

Assistant Township Engineer—Township of Woodbridge, New Jersey, population 78,000, is receiving applications for the position of Assistant Township Engineer. Work includes the development of engineering for municipal projects, such as roads, sewers, storm drains and other Public Works projects. Training and experience required; two years Public Works Engineering and a Civil Engineering Degree. Salary open. For information contact Carl F. Wheeler, Township Engineer, 1 Main Street, Woodbridge, N. J.

Draftsman—experienced structural steel detailer and checker. Permanent position with established consulting firm. Fringe benefits. Submit resume of experience, references and salary expected. Samborn, Steketee, Otis and Evans, Libbey-Owens Ford Building, Toledo 2, Ohio.

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• *POSITIONS WANTED*

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General Contractors' Superintendent—age 43 —experienced power plants, sewerage plants, industrial. Prefer Illinois-Indiana location. Will relocate to suit. A-1 references. Reply to PW-6706, Engineering News-Record.

Construction Manager: 13 years chemical, textile & industrial experience. BS and MS Civil Engineering. Professional Engineer NY & Delaware. Will relocate in N. E. US. PW-6707, Engineering News-Record.

Materials Engineer, soils, concrete, asphalt. 11 years experience as supervisor. Have worked for contractors and consultants in U.S. and overseas. PW-6694, Engineering News-Record.

Construction Executive: age 44; twenty-three year background. All phases of industrial, commercial, and institutional construction. Bids to completion, contract negotiation, construction management, cost accounting, and financing analysis. Presently employed. Desire change and connection with young, growing, aggressive organization with possible future participation. Would also consider old line established company in management or branch management capacity. Minimum $18,000 annually. References. PW-6685, Engineering News-Record.

• *POSITIONS WANTED*

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Structural Engineer, Graduate C.E., 36, 10 years design exp. in conc. and steel for industrial structures. Desire position Westcoast, West. PW-6729, Engineering News-Record.

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• *POSITIONS WANTED*

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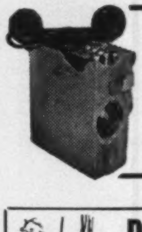

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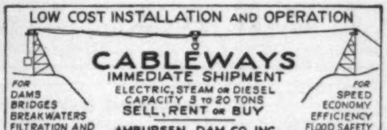

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Editorials

More Help, Not Less

THE POWER TO TAX, said Chief Justice John Marshall 150 years ago, involves the power to destroy. It was a call to thoughtful, responsible action by taxing authorities, a call that should be heeded today by those proposing more taxes on U.S. companies operating abroad.

What Congress could destroy by thoughtless and unwise legislation is America's ability to compete successfully in international trade. And this definitely includes construction abroad.

The leading U. S. contracting and engineering firms who have been doing work overseas have banded together to present testimony to Congress opposing changes in the tax laws applicable to their operations. The story they can tell is reasonable and logical.

As matters now stand, profits made on work overseas can be left abroad and used as working capital to carry out other foreign work. Only when the profits are brought back to the U. S. are they subject to U. S. taxes. The proposal is to abolish this tax deferral practice, and to tax all profits as soon as they are made.

The firms working abroad can point out that they pay local taxes in the countries where they operate. To have full U. S. taxes imposed on top of these would be a definite handicap. It would be even more stringent than the practice now in effect with respect to profits brought back to the U. S., which are taxed only at the difference between the U. S. rate and the rate already paid abroad.

Justification for the use of a "foreign base" company —one of the practices most widely criticized—can also be made. The foreign base company, a subsidiary of the U.S. firm, is usually set up in a country that exempts or imposes very low taxes on income earned outside its borders. Profits made elsewhere, therefore, can be channeled to the foreign base company instead of being brought back to the U. S., where they would be taxed at rates up to 52%.

This is declared to be bad. But is it, when it permits the company to assemble large blocks of working capital that it can use in expanding its operations abroad in competition with firms from other countries?

This competition, which U. S. construction companies must meet abroad, is becoming fiercer every day. Firms from such countries as Great Britain, France, Italy and West Germany benefit not only from lower labor rates and taxes at home, but their work abroad is often subsidized by their governments. U. S. firms enjoy none of these advantages. It would be shortsighted indeed to penalize them further.

There is a final and clinching argument. Excessive taxes, if they did not destroy the companies concerned, could at least cause them to abandon their foreign operations. Then the large amounts of money held by the foreign base companies would no longer be available to carry out construction jobs in underdeveloped countries. The money could only be replaced by larger foreign-aid appropriations. Substituting public money for private enterprise money is a poor way to serve the American people.

All the shooting on this tax question began with attempts to reduce the outflow of gold. But cutting down foreign investment abroad by confiscatory taxes on private individuals and companies, and then being forced to use public money to maintain our position in international trade is no way to go about it.

The real problem, which has been lost sight of, is to improve the competitive position of our companies operating abroad. They need more help, not the handicap that the proposed taxing measure would impose.

Up-Grading Needed

DESPITE IMPROVEMENTS IN CEMENTS over the years, a better product is needed for use in the great majority of ordinary construction jobs. Present cements are satisfactory when concrete is made under rigid control, but all too often such control is not practicable. Hence, a low-cost cement, more nearly immune to the vagaries of man and nature than existing cements, would be a great boon to the construction industry.

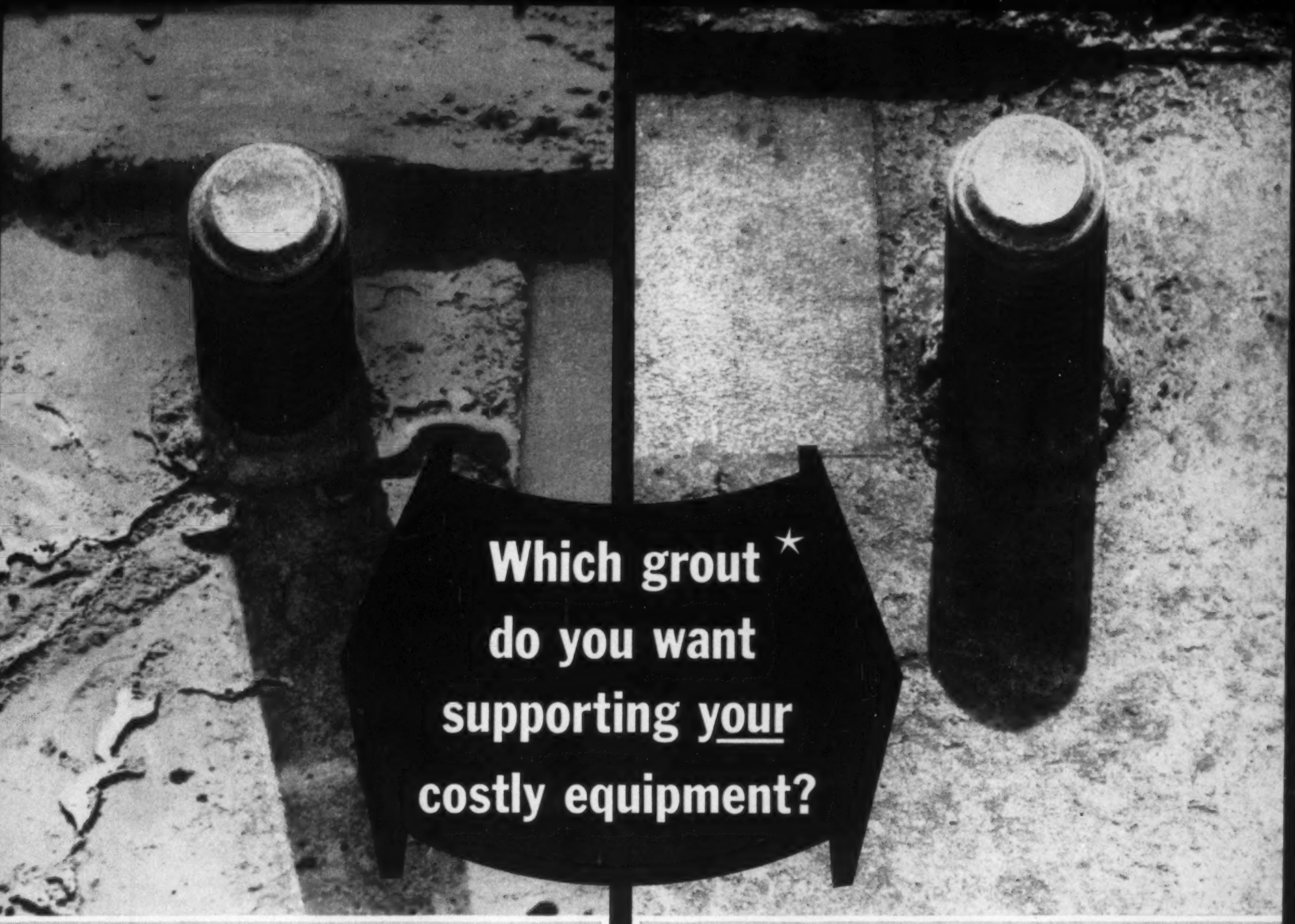
Until such a cement can be developed, however, a step in the direction of some of its desirable properties could be taken by providing greater uniformity in present cements. A too-frequent complaint is that the quality of portland cement not only varies with different producers but also with different shipments from the same producer.

Uniformity of cement will eliminate one of the factors that affect concrete construction adversely. But quality also should be improved; for example, by raising ASTM standards for cements.

The ASTM specifications offer minimum requirements, and cement producers have little or no incentive to make a cement that will greatly exceed them. The reason: Under present conditions there is no assurance that a better cement would be used even if specified.

This situation is a consequence of the great growth in use of ready-mixed concrete. Except for unusually large projects, ready-mix producers rarely can guarantee delivery of a concrete with a specified brand of cement to a specific job. Hence, concrete purchasers are unable to favor those cement brands that do exceed ASTM minimum requirements.

The solution is to raise the quality of all cements. An initial step would be to jack up ASTM minimums, which nearly every cement producer now meets with ease. An opportunity to do this will arise next month, when the ASTM Committee C-1 on Cement meets in Atlantic City. The opportunity should not be allowed to pass; higher standards are badly needed.



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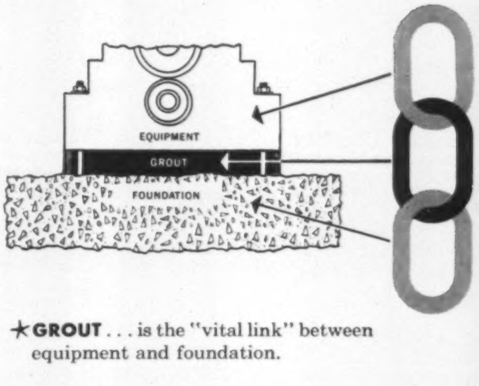

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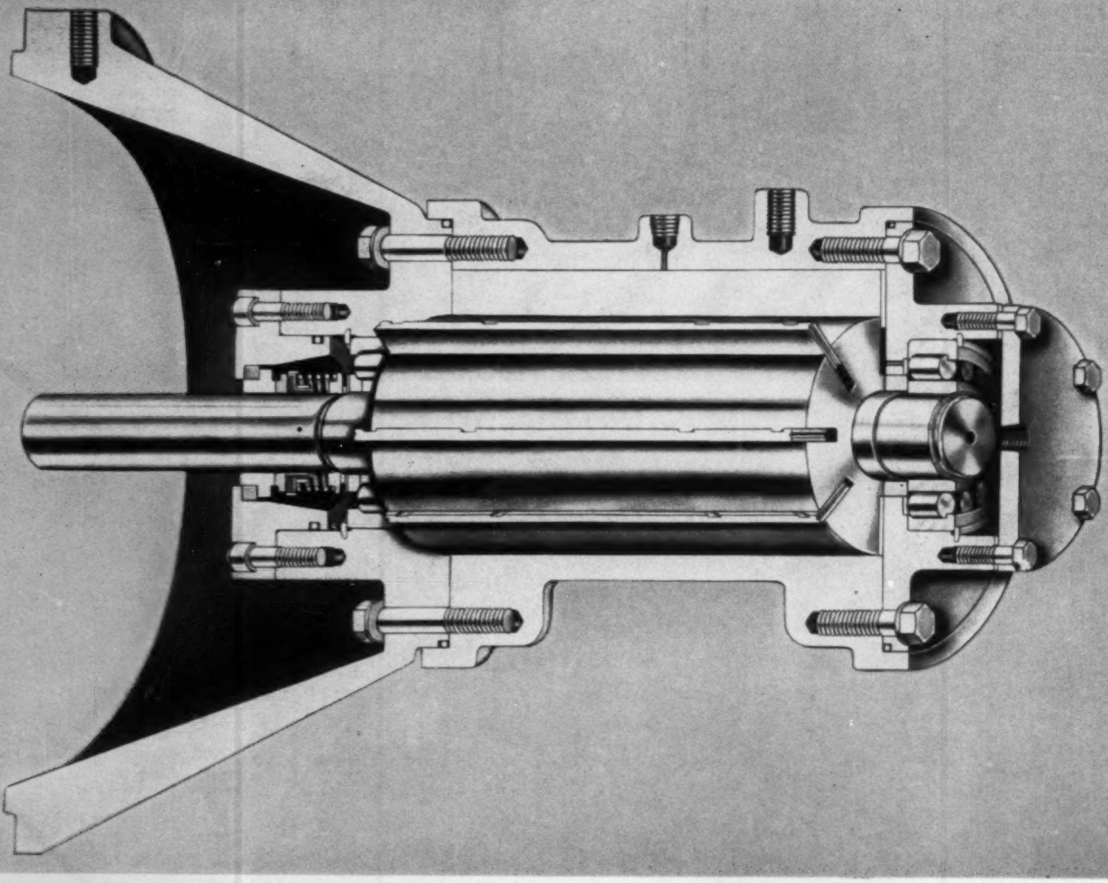

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